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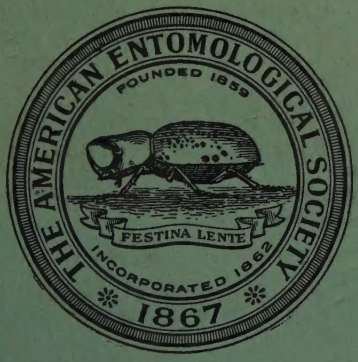


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# THE SPECIES OF THE GENUS PROCOLPIA (ACRIDIDAE: ROMALEINAE)

BY JAMES A. G. REHN

*Curator of Insects, Academy of Natural Sciences of Philadelphia*

The genus *Procolpia* was erected by Stål in 1873,[1] based on Serville's *Xiphicera emarginata*, which was described from Brazil. In 1878[2] Stål contrasted *Procolpia* with his genus *Munatia*, described in 1875, and founded on *M. punctata* Stål,[3] from Chiriquí, Panama. The characters to distinguish the two, as set forth by Stål in 1878, were that in *Procolpia* the apices of the tegmina and wings were truncate, in *Munatia* long produced, strongly and acuminately narrowing to the tips, which latter were said to be narrowly rounded; in *Procolpia* the dorsal carina af the genicular extremity of the caudal femora was described as strongly elevated and apically ending in a larger tooth, in *Munatia* this carina was regarded as not strongly elevated and its terminal denticle was less prominent; in *Procolpia* the caudal femora were considered to be shorter, in *Munatia* longer.

There have been in the literature of the past half century some expressions of uncertainty regarding the diagnostic features of the two genera, and hence whether certain species, which had been described, were properly referred to one or the other of the genera. This has been complicated by the fact that the status of other related genera, which entered into the situation to a considerable degree, could not be accurately determined until the original material of certain genotypic species could be re-examined. This has now been possible, the results of these examinations are being presented elsewhere, and it is now known they have no direct bearing on the genus *Procolpia*.

I now have forty specimens of the genus *Procolpia* before me, of these thirty-five are in the Academy series, all here reported so belonging unless otherwise stated, the total representing all but

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[1] Öfversigt K. Vetensk.-Akad. Förhandl., 1873, no. 4, p. 52.

[2] Bihang K. Vetensk.-Akad. Handl., 5, no. 4, p. 15.

[3] Bihang K. Vetensk.-Akad. Handl., 3, no. 14, p. 28.

one of the species which I believe can be referred to the genus, and in addition there is, in our series, material of several species of *Munatia*. It is thus possible to determine what features do distinguish the two genera, to present a tentative key to the species of the genus *Procolpia*, which has never been done previously, and to place on record the localities and related information furnished by the available material. I am indebted to the authorities of the United States National Museum, and particularly to my friend, Dr. Ashley B. Gurney, for the opportunity to examine four specimens of *Procolpia* from the collections in their charge.

It is clearly evident that in the species of the genus *Procolpia* the apices of the tegmina and wings range in outline from markedly truncate (*emarginata, regalis, centurio, lankesteri* and *inclarata*) to acute with a slight oblique subtruncation of the distal portion of the sutural margin of the tegmina, and with a definitely acute apex of the anterior field of the wings (*minor*). While the elevated expansion of the median carina of the genicular extremity of the caudal femora is markedly developed in the male of *P. emarginata*, it is less extreme in the female sex of the same species, as well as in *centurio, lankesteri, inclarata* and *minor*, although the distal tooth is well evident in all. Although their supposedly orthodox features have by no means the diagnostic value they were long supposed to possess, the genera *Procolpia* and *Munatia* are well separated and need not be confused. However, their most reliable differential features have never been stressed. Briefly these contrasting characters are:

*Procolpia*

Form as a whole more robust and less attenuate.

Face ventrad of median ocellus with a distinct, continuous and narrow frontal costa, its margin subtuberculate. Marked infraocular carinae present.

Fastigio-facial angle, as seen in profile, rounded or subrectangulate.

Pronotum with dorsal surface of metazona subfossulate cephalad on each side of the median carina; pronotal surface with numerous granular points; cephalic margin of pronotal disk very distinctly emarginate mesad; median carina of pronotum heavier and coarser, higher, more tectate.

Tegmina with a well-marked proximal lobe to the costal margin; venation with more definite longitudinal elements and less tendency toward subuniform areolation.

Caudal femora shorter, more robust, their carinae, and sometimes surface, with numerous granular to subspiniform tubercles.

*Munatia*

Form as a whole more slender and more attenuate, the whole more compressed.

Face ventrad of median ocellus with frontal costa lacking (♂) or obsolete (♀). No infra-ocular carinae present.

Fastigio-facial angle, as seen in profile, acute to rounded-acute.

Pronotum without definite fossulation of the dorsal surface of the metazona; pronotal surface coriaceous but with few or no granular points; cephalic margin of pronotal disk very shallowly and minutely emarginate mesad; median carina of pronotum low, finely marked, less tectate.

Tegmina with the costal margin arcuate but lacking a proximal lobe; venation with longitudinal elements not sharply marked and the whole with a close subuniform areolation.

Caudal femora much more elongate, slender, smoother, with the fewer carinal tubercles small and not prominent, surface lacking tubercles.

The genus *Procolpia* has a relatively broad range, this extending from east-central Mexico to southeastern Brazil, Uruguay, Paraguay, extreme northern Argentina, eastern Bolivia and eastern Peru, although it does not seem to be abundant at any place, as it is sparsely represented in most collections. On the other hand *Munatia* is limited to Central America, and the few records of it from South America clearly refer to other genera, *Procolpia* among these.

KEY TO SPECIES OF PROCOLPIA

1. Apex of tegmina sharply and transversely to subobliquely concavo-truncate, this sharply cut off from the sutural margin. Wing disk yellowish; apex of wing not markedly produced distad of free margin of axillary field of wing. Size larger. Female proportionately more elongate ..... 2

Apex of tegmina not sharply transverse truncate, instead with a short straight obliquity of that area diverted to the sutural side of the apex, and but narrowly marked off from the sutural margin of the tegmina, while the flexure develops the disto-costal angle into an acute terminal point. Wing disk blue; apex of wing marked and acutely produced distad of the free margin of the axillary field of wing. Size smaller. Female proportionately shorter and more robust. (Northern Argentina, Uruguay, Paraguay, eastern Bolivia and interior Brazil.)

*minor* Giglio-Tos

2. Fastigial process as seen in profile with the vertical outline of its apex rounding ventrad into that of the ventral border of the process, but subangulate dorsad where it joins the dorsal outline of the same. Lateral margins of dorsum of fastigium serrulate. Ventral ovipositor valves of female more attenuate and more slender. Subgenital plate of male more elongate and more sharply acuminate. (Coastal southern Brazil.) ..... *emarginata* (Serville)

Fastigial process as seen in profile with its apical outline rounding into both the ventral and dorsal sections of the same profile. Lateral margins of dorsum of fastigium entire (or at least not truly serrulate). Ventral ovipositor valves of female less attenuate and less slender. Subgenital plate of male less elongate and less sharply acuminate (male not known of *centurio*) ..... 3

3. Pronotal crest broader, thicker and more tectate as seen in dorsal and lateral aspects, particularly on the prozona, metazonal pinching of crest between the discal impressed foveolae quite marked. Metazonal disk of pronotum broader, greatest dorsal breadth contained 1.8 times in median pronotal length. (Size large.) (Southeastern Bolivia.)

*centurio* new species

Pronotal crest narrower, thinner, and more definitely carinate as seen in dorsal and lateral aspects, metazonal pinching of crest between the discal impressed foveolae less sharply indicated. Metazonal disk of pronotum narrower, greatest dorsal breadth contained nearly or quite twice in median pronotal length ..... 4

4. General form in female somewhat shorter and less attenuate. Pronotum in that sex somewhat broader and thicker, with the medium crest higher, more elevated immediately cephalad of the principal sulcus. Alar organs in female proportionately shorter, surpassing the apices of the caudal femora by a distance less than the pronotal length. (Mexico and Guatemala.) ..... *inclarata* (Walker)

General form in female more elongate and more slender. Pronotum in that sex rather narrower and more attenuate, with the median crest lower throughout. Alar organs in females proportionately longer, surpassing the apices of the caudal femora by a distance somewhat surpassing the pronotal length. (Costa Rica, Panama and eastern slopes of Peruvian Andes.) ..... *lankesteri* new species

Incertae sedis: *regalis* I. Bolívar. (Apiahy, Paraná, Brazil.)

**Procolpia emarginata** (Serville)

Plate I, figs. 1-2; pl. II, figs. 9-10; pl. IV, figs. 19-21.

1831. *Xiphicera emarginata* Serville, Ann. Sci. Nat., XXII, p. 271. [♀; Brazil.]

1862. *Xiphicera emarginata* Blanchard, in Cuvier, Le Règne Animal, Insectes, Atlas II, pl. 85, figs. 2, 3 and 3a. [♂, ♀.]

I have before me, referable to this species, the following material:

BRAZIL: (without exact locality); 1 ♂.[4] Rio de Janeiro; 1 ♀; [Amer. Mus. Nat. Hist.]. Estacão Piassaguera, near Santos, São Paulo; XI, 1910; (H. Lüderwaldt); 1 ♂.[4]

Past literature contains very few records which are correctly referable to this species. Liebermann in 1950 reported a single female of it from Santa Catarina, Brazil,[5] which constitutes the most southern record we have for the species. His record and those from Rio de Janeiro and Estacão Piassaguera, here given, encompass all exact or areal localities we have for the species' occurrence. It is possible it occurs only in coastal Atlantic drainage areas of southeastern Brazil.

This species possesses either definite dichromatism, or it has regional tendencies along such lines. All three specimens before me are definitely in a brown phase, with the dorsum of the head (and fastigium), a narrow area along the pronotal median carina, and almost all of the anal area of the tegmina ochraceous-buff, the remainder of the tegmina rather obscurely mottled with dull buffy on a general dresden brown base. Blanchard's figure of the female shows a more brilliantly colored individual, with the anal field of the tegminal pea green, and the other tegminal markings much more contrasted. Serville's description emphasizes the greenish character of the dorsum of the head and pronotum, as well as the greenish cast of the brown of the tegminal discoidal and marginal fields, and also of the limbs. It would seem from this that definite

[4] These specimens were recorded by me in 1918 (Trans. Amer. Entom. Soc., XLIV, p. 199) as *emarginata*. Estacão Piassaguera is on the railroad between Santos and Alto da Serra, low down (not over 100 meters elevation) on the Atlantic side of the Serra do Mar.

[5] Rev. Brasil. Biol., 10 (1), p. 134.

green and brown chromatomorphs [6] occur in this species, in the same population or regionally delimited.

As no detailed measurements of this species have ever been given, the following dimensions (in millimeters) may prove of service.

| | Length of body | Length of antenna | Length of pronotum | Greatest breadth of pronotum caudad across lateral lobes | Length of tegmen | Length of caudal femur |
|---|---|---|---|---|---|---|
| ♂, "Brazil" ..... | 34.3 | 18.0 | 9.0 | 6.1 | 33.0 | 18.5 |
| ♀, Rio de Janeiro, Brazil ..... | 60.5 | 25.8 | 13.2 | 10.2 | 49.0 | 27.0 |
| ♀, Estacão Piassaguera, São Paulo, Brazil ..... | 57.5 | 22.0 | 13.3 | 10.4 | 46.0 | 28.0 |

**Procolpia regalis** I. Bolívar

1909. *Procolpia regalis* I. Bolívar, Rev. Chilena Hist. Nat., 13, p. 337. [♂, ♀; Apiahy, Brazil.]

I have seen no material referable to this species, and none seems to have been reported since the original description. The species is apparently closely related to *P. emarginata,* but much larger, probably equal in size to the here-described *P. centurio.* The use of the word "probably" is due to the fact that the description of *regalis* has numerous typographical errors, and apparently the measurements of the two sexes have been transposed. The female sex is given first, and is said to be 37 millimeters in length, while the male is given as 60 millimeters long. In the description are numerous evident typographical lapses, probably due to the author never having seen proof. With the measurements reversed, to

[6] This term was first used by the author in 1916 (Trans. Amer. Entom. Soc., XLII, p. 268, footnote 29) as a convenient one for an intra-specific color form or color phase. It was then stated, nearly forty years ago, "The use of the term is largely provisional, as many apparent color 'forms' will in the future be shown to be Mendelian, while others as certainly will prove to be of environmental or physiological derivation. The word used merely enables one to speak of effect, while the experimental biologist is working on the cause."

agree with the sexual size difference we find in all the romaleid genera, the proportions (in millimeters) would be as follows:

♂ : length of body, 37; of antenna, 20; of head, 6; of pronotum (erroneously given as "fron"), 9; of tegmen, 34; of caudal femur, 19.

♀ : length of body, 60; of antenna, 25; of head, 7.5; of pronotum, 16; of tegmen, 51; of caudal femur, 30.

The species is described as larger than *emarginata*, with the tegmina very much larger proportionately. The fastigial process, viewed in profile, is said to be not completely rounded, the ventral part of the outline alone being so, and not similarly joining the dorsal plane, while the keel of the supra-genicular section of the caudal femora is described as more strongly compressed and more prominent distad than in *emarginata*. The wing disk is said to be "atrino," clearly a typographical error for "citrino."

The type locality, Apiahy (or Apaia, as it is in modern Brazilian orthography) is in the Serra Paranapiacaba, in the state of Paraná, at an elevation of about 1125 meters. Its approximate position is 24° 30′ S., 48° 50′ W. Whether we have in *regalis* an analogue of *emarginata* found only at higher elevations, or one of another line of the genus, remains to be determined.

**Procolpia centurio**[7] new species Plate II, figs. 11-12; pl. IV, figs. 22-24.

This striking species has the largest body bulk of any of the genus which I have seen. The chief characters to distinguish it have been presented in the preceding key to the species, but the general form of the pronotum, with its generally more tectate dorsum, sharply pinched metazonal crest, and the broader metazonal dorsum, should serve at once to place the species. In addition *centurio* has the proximal nodosity of the extensor surface of the caudal tibiae proportionately larger, and the ventral valves of the ovipositor of the female are not as attenuately produced as in *emarginata*. Unfortunately the male sex is not known as yet. When comparison of this species is made with Bolívar's description of *P. regalis*, replete as the latter is with typographical errors, the sole feature on which dependence can be placed is that *centurio* has the fastigium horizontal, not ascending, and the lateral margins of the same are entire, and not denticulate. The description

[7] I. e. *centurion*, in allusion to its size, and the helmet-like character of the pronotum.

of *regalis*, as far as can be interpreted from its jumbled condition, would indicate a species closer to *emarginata* than to the present one, *regalis* apparently having a fastigial profile like *emarginata*.

*Type*.— ♀ ; Provincia Sara, Bolivia.[8] Elevation, 450 meters. 1922. (J. Steinbach.) [Academy of Natural Sciences of Philadelphia, Type no 5787.]

Size very large (length of body, 64.5 mm.) ; form moderately attenuate; darker areas of dorsum of head and pronotum subvelutinous with scattered small dark spicular points, which also are present on the face and lateral aspects of the head and thorax.

Fastigium as seen in profile not ascending cephalad, the outline in the same view with its apex rounding evenly into both the dorsal and ventral fastigial outlines, as seen from the dorsum the lateral margins of the fastigium are sigmoidally convergent distad, giving the whole a sublanceolate outline, the median length of the fastigium cephalad of the eyes almost equal to one and one-fifth times the greatest basal breadth of the same (as 30 to 25), while the margins are almost entire and not at all truly serrulate; interspace between eyes nearly equal to three-quarters of the basal breadth of the fastigium; facial line ventrad of fastigium, as seen in profile, forming an angle but moderately more obtuse than a right angle with the ventral outline of the fastigium, basal depth of the fastigium, as seen in profile, faintly greater than the subvertical ventral section of the facial outline (as 25 to 22) ; frontal costa on face indicated and subsulcate but narrow and with bordering carinulae incomplete and indefinite; eyes prominent as seen from dorsum, basal outline elliptical, with greatest breadth equal to two-thirds the depth (as 14 to 21). Antennae moderately heavy, distinctly but not exceptionally ensiform, not complete in the unique type, but probably when perfect longer than the head and pronotum combined.

Pronotum as seen from dorsum more robust than in the same sex of *emarginata*, the whole appreciably broadening caudad and this also true of the discal section alone, the greatest breadth caudad across the lateral lobes being equal to seven-tenths the median length of the pronotal disk, while the greatest caudad breadth of the disk equals three-fifths of the discal length (as 59 to 100) ; cephalic margin of disk V-emarginate mesad with bordering rounded trigonal marginal lobules, thence laterad moderately concave, caudal margin of disk rectangulate with arms of the angulation very shallowly concave, surface of disk mesad of the lateral borders of the disk appreciably tectate on the prozona, deplanate each side of the median crest on the metazona, the surface of this area cephalad very appreciably fossulate on each side, these encroaching some on the immediately

[8] "Provincia Sara" is an area in the western section of the Department of Santa Cruz, embracing part of the Cordillera Oriental and certain head streams of the Mamoré (Madeira) drainage It thus has a mixture of Amazonian and lower Andean life elements, as well as others penetrating from the Chaco to the eastward.

caudal sections of the prozona, while the crest is strongly compressed or "pinched" at about one-third of its metazonal length, lateral shoulders well marked but rounded on the metazona, their cephalic continuations present as low swells descending ventro-cephalad over the prozonal portion of the lateral lobes, median crest in profile appreciably ascending caudad to about the middle of the metazona, thence caudad descending to the caudal margin, prozona and metazona subequal in length on the median line of the pronotum, three transverse sulci linearly intersecting the median crest; lateral lobes of the pronotum with greatest caudal depth equal to eleven-sixteenths of the greatest dorsal length of the lobes, caudal margin straight oblique.

Tegmina moderately elongate, surpassing the apices of the caudal femora by a distance equal to the pronotal length with half that of the head, as a whole evenly and gradually narrowing distad, the costal margin with a well-marked proximal lobe at the proximal fourth, this appreciably marked off from the more distal section of the margin, which is gently arcuate in its distal third to the moderately oblique but subtransverse, concavo-truncate apex, sutural margin largely straight but weakly concave near disto-sutural angle; anal field slightly broader than in female of *emarginata*. Wings somewhat more elongate and attenuate than in *emarginata*, their greatest breadth equal to but half their length (as 26.5 to 53), anterior field slightly broader, apex with its suboblique subtruncate concavity slightly broader, lobation of axillary field more deeply incut on the axillary side.

Prosternal process conical, subcompressed, erect, spiniform. Interspace between mesosternal lobes quadrate, equal in breadth to one of the lobes; metasternal interspace strongly transverse, much broader than that between the mesosternal lobes, shallow.

Supra-anal plate acute trigonal; cerci short, conical, not surpassing the middle of the supra-anal plate; infra-cercal plates acute-angulate in profile, their apices surpassing the apex of the supra-anal plate; ovipositor valves as a whole compressed as in *emarginata*, but ventral valves as seen in ventral aspect with their distal section less attenuately elongate than in *emarginata* (i.e. the proximal breadth of this section as 3 to 7 for its length[9]).

Limbs as in *P. emarginata* female except that the supra-genicular production of the caudal femora is less pronounced; the internal series of spines on the caudal tibiae has its elements somewhat shorter than in *P. emarginata*, the external series number 9-11, the internal 7-8.

Length of body, 64.5 mm.; length of pronotum, 16.3; greatest caudal width of pronotum across lateral lobes, 11.5; length of tegmen, 54.0; length of caudal femur, 30.0.

*Coloration.*—General base color ranging from bister to snuff brown, as pale areally as sayal brown. Medio-dorsal pale line on head involving the whole discal surface of the fastigium, narrowing caudad on the occiput, relatively broad on the prozonal section of the pronotum, narrower on the metazona, anad appreciably constricted where the metazonal crest is pinched,

[9] In *emarginata* the ratio is 3 in width to 10 in length.

and involving almost all of the anal field of the tegmina in the latter's proximal two-thirds, immediately proximad in this field narrowing toward the tegminal base; on the head this pale line is honey yellow, on the pronotum cream color cephalad becoming ochraceous-buff caudad, while it is cream color again on the anal area of the tegmina. Head snuff brown, overwashed with bister, particularly on the sides of the fastigium, the genae and face with the spicular points rather shining blackish; eyes burnt umber; antennae bister. Pronotal disk with the metazonal areas on each side of the median crest dull bister with numerous shining spicular points, this bister wash extending cephalad over the prozonal section of the disk in an evenly narrowing manner, the lateral boundaries of this area there not sharply defined, lateral lobes of pronotum snuff brown, paling to sayal brown, with spicular points and also somewhat darkened along the descending indications of lateral shoulders on the prozona. Tegmina with the marginal and discoidal fields rather weakly blotched with mummy brown on snuff brown, these darker areas larger and more evident in the discoidal field. Wings with disk cream color, the band and more distal portions bister. Pleura largely sayal brown, becoming more bister caudad, with numerous bister spiculae. Abdomen snuff brown and bister, with an umber tinge. Limbs mottled of the general colors, the caudal femora clouded with bister on a paler base, the genicular area as a whole darker than the more proximal section; caudal tibiae laterad nearer saccardo's umber, with the extensor surface almost solidly bister, spines more rufescent at base, black tipped.

The type is unique.

**Procolpia lankesteri**[10] new species

Plate I, figs. 3-4; pl. III, figs. 14-15; pl. IV, figs. 25-26.

1907. *Procolpia emarginata* Bruner, Biol. Cent.-Amer., Orth., II, p. 523. (In part only, and not *emarginata* of Serville.) [Pózo Azúl, Costa Rica record only.]

1925. *Procolpia inclarata* Hebard, Trans. Amer. Entom. Soc., L, p. 101. [Rio Trinidad, Panama.] (Not of Walker, 1870.)

This very striking species has been confused in the past with Walker's *inclarata*, which is not known as yet from south of Guatemala. The present one, however, is apparently more closely related to the South American *P. centurio*, here described, and also ranges southward over a considerable area of northeastern South America, as it is represented before me by a female from Chanchamayo, Peru. From *P. centurio* the present species can be distinguished, in the female sex, the sole one known of *P. centurio*,

[10] In honor of C. H. Lankester, of Las Cóncavas, Costa Rica, whose knowledge of the animal and plant life of Costa Rica is encyclopedic in its breadth, and whom the author has been privileged to accompany on several unforgetable journeys, one to the type locality of this species.

by the features given in the preceding key and also by the more compressed and shallower pronotum, the more evenly pyramidical outline of the fastigial dorsum as seen from above, and the sharper angulation of the caudal margin of the pronotal disk.

*Type.*—♀; Pózo Azúl [de Pirris],[11] Costa Rica. (M. A. Carriker, Jr.) [Academy of Natural Sciences of Philadelphia, Type no. 5788.]

Size large; form more slender and elongate proportionately than in any of the other forms of the genus; surface sculpture of the same general pattern as in the other species of the *emarginata* line of the genus, the pronotum with its surface somewhat less spiculose than in *emarginata*, more so than in *centurio*, and in this respect more nearly as in *inclarata*.

Head as seen from dorsum very similar to that of *inclarata* but slightly narrower, fastigial outline in same view more sharply acuminate, with the lateral margins more straight convergent cephalad; in profile the fastigial outline is horizontal dorsad, and as in the related species the apex rounds to both the dorsal and ventral borders of the fastigial production; eyes with their prominence, as seen in dorsal aspect, as in *P. inclarata*, in basal outline elliptical, greatest breadth about two-thirds of greatest depth (as 15 to 23). Antennae distinctly ensiform, nearly twice as long as the pronotal disk, articles numbering twenty-two.[12]

Pronotum as a whole appreciably narrower than in the same sex of *P. inclarata*, but otherwise very similar in general form, as in *inclarata* the metazona on the median line is slightly longer than the prozona; cephalic margin of disk with its median V-emargination and the concavity of the converging sections of the same margin as in *inclarata*, caudal margin of disk appreciably more produced acute-angulate than in *inclarata*, the converging lateral sections of the margin moderately and evenly concave, greatest breadth of metazonal disk subequal to half the greatest median length of the pronotum, its surface cephalad less strongly subfoveolate on each side of the median carination than in *P. inclarata*; pronotal median carina as seen in profile lower and more uniform in elevation than in *P. inclarata*, less cristate and not distinctly sublobate between the second and third (principal) transverse sulci, as is the case in *P. inclarata*, the incision of all of the transverse sulci shallower than in *inclarata*.

Alar organs more elongate in proportion to general bulk than in the female sex of any other member of the genus except *P. centurio*, both surpassing the apices of the caudal femora by a distance subequal to the length of the pronotum plus one-half that of the head. Tegmina proportionately

[11] For a description of this interesting locality, which also was visited by Mr. Lankester and the author, and some notes on its biota, see Rehn, Yearbook Acad. Nat. Sci. Phila., 1927, pp. 32-34.

[12] In the Rio Trinidad, Panama female the antennal articles number twenty-three to twenty-four.

narrow, the greatest breadth at proximal fourth, then evenly narrowing to the nearly transverse emarginato-truncate apex, which in breadth is equal to that of the discoidal and anal fields combined at the proximal fourth of the tegmen; costal margin with the proximal lobation well marked, essentially as in *inclarata*, the same margin distad weakly arcuate, sutural margin largely straight, very faintly concave near apex. Wings with length slightly more than twice their greatest breadth, with apex slightly more acute than a right angle, the apical margin of the discoidal field weakly oblique, concavo-truncate, distal margin of axillary field arcuato-sublobate, essentially as in *inclarata*.

Prosternal process erect, sublamellate compressed, acute trigonal in profile outline; interspace between mesosternal lobes subquadrate, subequal in breadth to a single lobe, with internal margin of lobes distinctly convex; interspace between metasternal lobes strongly transverse, much broader than that between the mesosternal lobes.

Cephalic and median femora slightly more slender than those of the female of *P. inclarata*, the median pair somewhat longer proportionately. Caudal femora somewhat longer proportionately and more attenuate than in the female of *inclarata*; caudal tibiae with 9-10 external and 7-8 internal spines on the extensor margins; caudal tarsi with metatarsus and third article subequal in length.

*Allotype.*— ♂ ; same data as type. [Academy of Natural Sciences of Philadelphia.]

Very similar to the male sex of *P. inclarata*,[13] differing particularly in the features here given.

General form slightly narrower and appreciably more elongate, in this agreeing with the female sex.

Head with profile of fastigium agreeing with that of the female; fastigial outline, as seen from the dorsum, virtually identical with that of the male of *inclarata*. Antennae in proportions essentially as in the female of the present species.[14]

Pronotum very similar to that of *inclarata*, slightly narrower as a whole, with the angle of the caudal margin of the disk somewhat more sharply acute, the metazona slightly longer than the prozona, instead of subequal in length, while the median carina is as a whole lower and straighter, with slightly less emphasis of the sublobation between the second and third (principal) transverse sulci.

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[13] Direct comparison is made with a male of *inclarata* from Atoyac, Vera Cruz, Mexico, this being the individual from that locality recorded by Bruner in the "Biologia" (Orth., II, p. 223).

[14] Males before me show from twenty-three to twenty-four antennal articles.

Alar organs surpassing the apices of the caudal femora by the same ratio as in the female (i.e. a distance equal to the length of the pronotum and half that of the head combined). Tegmina very narrow and elongate, their greatest breadth at proximal fourth contained 7.1 times in their length (as 29 to 208). Wings with greatest breadth equal to 2.35 times the greatest breadth (as 85 to 200), character of apex of wings as described for the female sex.

Prosternal spine as in female; interspace between mesosternal lobes sublongitudinal, slightly narrower than one of the lobes, the latter much less convex on their internal margins than in the female; interspace between the metasternal lobes shallow, subtransverse, slightly broader caudad than the interspace between the mesosternal lobes.

External genitalia without noteworthy differences from those of the male of *P. inclarata*.

Cephalic and median femora appreciably more slender than in the male of *inclarata*, the median pair slightly longer. Caudal femora essentially as in *inclarata*; caudal tibiae with 10-11 external and 8-9 internal spines.[15]

*Coloration.*—Having the same general pattern as the other members of the *emarginata* line of the genus, with its darker tones gray brown and wood brown to blackish brown, with the pale medio-longitudinal bar marked in all the adults of *lankesteri* now before me. The general base color ranges from russet to cinnamon-brown and dresden brown, with the overlying cloudings, or even distinct cloud maculations, of the discoidal field of the tegmina and the suffused dorsum of the pronotal metazona ranging from prout's brown through bister to even blackish brown. The pale medio-longitudinal line ranges from as pale as chartreuse green (the Barro Colorado male), through primuline yellow (allotype), to antimony yellow (type).[20] This latter tone is sometimes (usually in the females) more contrasted on the pronotum than on the fastigium and occiput. The dorsum of the pronotum is usually somewhat darker than the lateral areas, and the postocular region on the head may be quite fuscous. The tegminal blotching varies greatly in size and emphasis in the female, the type, which is here figured, representing the mean in this respect, the blotching larger and more spaced out in the Chanchamayo paratype. The wing disk is amber yellow in the type and allotype, and as greenish as chartreuse yellow in the Chanchamayo female. The limbs show the same rather non-descript mottling of gray browns, wood browns and fuscous brown as is found in the related species, the caudal femora sometimes obscurely transverse bifasciate with fuscous, this evident to some degree in all the Costa Rican specimens but obsolete in the adults from Panama and Peru. However, the immature individual from the Rio Trinidad, Panama, has indications of this pattern.

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[15] Male paratypes show as few as nine external spines.

[20] The female from Rio Trinidad, Panama has had this area so altered from desiccation I have refrained from considering it in this respect.

*Measurements (in millimeters)*

| | Length of body | Length of antenna | Length of pronotum | Greatest breadth of pronotum caudad across lateral lobes | Length of tegmen | Length of caudal femur |
|---|---|---|---|---|---|---|
| ♂, Juan Viñas, C. R., *paratype* ..... | 33.0 | 17.9 | 8.9 | 5.5 | 35.0 | 16.9 |
| ♂, Pózo Azúl de Pirris, C. R., *allotype* ..... | 37.0 | 17.1 | 10.1 | 5.7 | 33.5 | 17.2 |
| ♂, Barro Colorado Island, C. Z., Pan., *paratype* .. | ...[21] | 19.5 | 9.9 | 6.3 | 35.0 | 19.8 |
| ♀, Pózo Azúl de Pirris, C. R., *type* | 59.5 | 30.0 | 15.3 | 10.2 | 52.0 | 27.9 |
| ♀, Pózo Azúl de Pirris, C. R., *paratype* ..... | 54.0 | ...[22] | 15.3 | 10.2 | 48.0 | 26.8 |
| ♀, Trinidad River, Panama, *paratype* ..... | 56.0 | 26.8 | 15.1 | 10.2 | 55.0 | 27.7 |
| ♀, Chanchamayo, Peru, *paratype* .. | 58.5 | 25.2[23] | 15.9 | 10.7 | 55.5 | 29.0 |

*Distribution.*—From the Rio Reventazõn section of eastern Costa Rica (Juan Viñas) and Pózo Azúl de Pirris in western Costa Rica, to Panama, and thence southward to the Chanchamayo Valley on the eastern slopes of the Peruvian Andes. This pattern of distribution is becoming increasingly evident among the species of Orthoptera of southern Central America, and northwestern South America, being one of the two major distributional groupings of those forms which extend into the more southern continent. The other element consists of those Central American species which are also distributed eastward across northern South

[21] Specimen shrivelled and distorted, apparently from drying after alcoholic preservation.

[22] Lacking.

[23] Lacking tip.

America, or find their avenue eastward by means of the Amazon valley. In brief we have considerable groups of species which have what may be called: 1, Central American-Andean distributions, and, 2, Central American-Guiano-Amazonian ones.

*Paratypes.*—I have indicated as paratypes a male and a female from Juan Viñas, Costa Rica, a female from the type locality, a male from Barro Colorado Island, Canal Zone, Panama, a female from the Rio Trinidad, Panama, and a female from Chanchamayo, Peru. The ownership of those specimens not Academy property is shown below.

*Specimens examined*: 9; 3 ♂, 5 ♀, 1 juv. ♀.

Costa Rica: Juan Viñas; III, 1902; (L. Bruner); 1 ♂, 1 ♀ (*paratype*). Pózo Azúl de Pirris; (M. A. Carriker, Jr.); 1 ♂ (*allotype*), 1 ♀ (*type*):[24] (Underwood); 1 ♀ (*paratype*).

Panama: Barro Colorado Island, Canal Zone; VIII, 1939; (James Zetek); 1 ♂ (*paratype*); [U.S.N.M.]. Trinidad River; V, 4, 1911; (August Busck); 1 ♀ (*paratype*); [U.S.N.M.]:[25] III, 23, 1912; (A. Busck); 1 juv. ♀.

Peru: Chanchamayo, 1000 meters; IX, 1907; 1 ♀ (*paratype*).

**Procolpia inclarata** (Walker)

Plate I, figs. 5-6; pl. III, figs. 16-17; pl. IV, figs. 27-29.

1872. *Xiphocera* (?) *inclarata* Walker, Catal. Derm. Salt. Brit. Mus., III, p. 523. [♂;[26] Orizaba, [Vera Cruz, Mexico].]

Bruner in his "Biologia" study seemed uncertain what names, both generic and specific, to use for this species. On his plate, probably prepared somewhat in advance of his text, he considered *inclarata* a valid specific name, but referred it to *Munatia*.[27] In his text he considered *inclarata* a synonym of *emarginata*, but referred the species to *Procolpia*.[28] Apparently Bruner's figure was drawn from the Atoyac, Vera Cruz, Mexico male, then recorded, now in the Academy series, and listed below.

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[24] This is the material recorded by Bruner in Biol. Cent. Amer., Orth., II, p. 523, as *Procolpia emarginata*.

[25] Recorded by Hebard, Trans. Amer. Entom. Soc., L, p. 101 (1924), as *Procolpia inclarata*.

[26] Lectotype by selection of Uvarov (Trans. Entom. Soc. London, 1925, p. 285).

[27] Biol. Cent.-Amer., Orth., II, pl. III, fig. 1 and 1a (1907).

[28] Ibidem, p. 223 (1907).

Hebard in 1924 [29] pointed out the differences between *P. inclarata* and *emarginata*, and then stated that all Central American records of *emarginata* were based on material of *inclarata*. The latter conclusion we now know to be incorrect, as he failed to distinguish the here-described *P. lankesteri* from *inclarata*. In 1925 Uvarov,[30] however, followed Kirby [31] in regarding *inclarata* as equalling *emarginata*, and Hebard in 1932 again emphasized the specific distinctness of these two.[32] With material of both sexes of them before me, there can be no question of the validity of *inclarata*, as well as of the absence of *emarginata* from Central America and Mexico.

The species *inclarata* can be distinguished quite readily from the other members of its branch of the genus, that is the one including all but the relatively aberrant *P. minor*, by the characters given in the preceding key. In the female sex it is the stockiest member of that line, with proportionately shorter alar organs, in consequence the whole form of individuals of that sex, with the wings closed, being more definitely fusiform as seen from the dorsum.

The following material of *inclarata* is now before me:

Mexico: "Mexico;" (Sumichrast); 1 ♀ (ex Geneva Museum). Córdoba, Vera Cruz, 850 meters; IX, 7, 1926; (H. B. Baker); 1 ♂.[33] Fortín, kilometer 329 west of Córdoba, Vera Cruz, 2500 feet; VIII, 27, 1938; (H. R. Roberts); 2 ♂. Atoyac, Vera Cruz; XII; (L. Bruner); 1 ♂:[34] (Schumann); 1 juv. ♂. El Zapote, Pacific slope of Sierra Madre, Chiapas, 400 meters; XI, 12, 1939; 1 ♀.[33]

Guatemala: Morales, Izabal;[35] IX, 1930; (J. J. White); 1 ♂. Coatepeque, Quezaltenango;[36] V, 30, 1923; (E. G. Smyth); 1 ♀; [U.S.N.M.]. Olas de Moka,[37] Solola, 3000 feet; IX, 1908; 1 ♀; [U.S.N.M.].

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[29] Trans. Amer. Entom. Soc., L, p. 101.

[30] Trans. Entom. Soc. London, 1925, p. 285.

[31] Synon. Catal. Orth., III, p. 364 (1910).

[32] Trans. Amer. Entom. Soc., LVIII, pp. 268-269.

[33] Recorded by Hebard, Trans. Amer. Entom. Soc., LVIII, p. 268 (1932).

[34] This material was reported by Bruner, Biol. Cent.-Amer., Orth., II, p. 223 (1907), as *Procolpia emarginata*.

[35] In eastern lowland country, on the Rio Motagua, about 24 miles air line SW. of Puerto Barrios. Elevation under 300 feet.

[36] This locality is on the Pacific slope at an elevation of approximately 600 meters. Its position is approximately 14° 40′ N., 91° 52′ W.

[37] Also spelled "Moca." On the Pacific side of the Volcan de Atitlan. Approximate position 14° 32′ N., 91° 14′ W.

The above records outline the known distribution of *inclarata*, but are far too few to attempt to define it areally or zonally. It is evident, however, that it is present on both the Atlantic and Pacific slopes of Guatemala. Whether it or *P. lankesteri* is the species present in El Salvador, Honduras or Nicaragua remains to be determined.

The following measurements (in millimeters) may prove of assistance in future work:

| | Length of body | Length of antenna | Length of pronotum | Greatest breadth of pronotum caudad across lateral lobes | Length of tegmen | Length of caudal femur |
|---|---|---|---|---|---|---|
| ♂, Fortín, V. C., Mexico ..... | 28.0 | 17.0 | 8.9 | 5.3 | 30.0 | 14.3 |
| ♂, Fortín, V. C., Mexico ..... | 32.0 | 19.0 | 9.0 | 5.5 | 32.5 | 17.8 |
| ♂, Morales, Guatemala ..... | 30.0 | 20.0 | 7.9 | 5.7 | 32.0 | 16.3 |
| ♀, "Mexico" ..... | 69.0 | 24.5 | 16.0 | 11.4 | 58.5 | 30.0 |
| ♀, El Zapote, Chiapas, Mex. ..... | 54.0 | 22.0[38] | 13.8 | 10.7 | 44.0 | 25.5 |
| ♀, Coatepeque, Guatemala ..... | 46.0[39] | 19.0[38] | 15.4 | 10.1 | 44.5 | 24.5 |
| ♀, Olas de Moka, Guatemala ..... | 52.0[39] | ...[40] | 16.4 | 10.5 | 56.5 | 26.2 |

The pale yellowish or buffy medio-dorsal line on the head and pronotum is well marked in all the adult males, well indicated in the "Mexico" female and that from Coatepeque, and but very weakly developed in those from El Zapote and Olas de Moka. The continuation of this pale bar on the anal area of the tegmina is sometimes more greenish yellow in the males, in all of which it is strongly marked; it is clearly evident in the "Mexico" female,

[38] Extreme tip lacking.

[39] Abdomen greatly retracted.

[40] Incomplete.

in those from El Zapote and Coatepeque it is pale brownish mottled with darker brown, and in that from Olas de Moka the anal field has no base tone any lighter than that of the remainder of the tegmina, and the darker mottling is continuous with that of the latter but lacking the larger groupings seen in the discoidal field of the same and other female individuals, in other words there is in it no indication of a pale lining of the anal field.

**Procolpia minor** (Giglio-Tos)

Plate I, figs. 7-8; pl. II, fig. 13; pl. III, fig. 18; pl. IV, figs. 30-32.

1894. *P[rocolpia] minor* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Univ. Torino, IX, no. 184, p. 17. [♀; Rio Apa, Paraguay.]

1906. *Munatia australis* Bruner, Proc. U. S. Nat. Mus., XXX, p. 644. [♂, ♀; Sapucay, Paraguay.]

1909. *Munatia acutipennis* I. Bolívar, Rev. Chil. Hist. Nat., XIII, p. 338. [♂, ♀; Sapucay [in error as Sacupay], Paraguay.]

The synonymy of *Munatia australis* under *Procolpia minor*, and reaffirmation of the proper generic position of the species, was made by the present author in 1907,[41] on the basis of a series from Sapucay, Paraguay, which was the type locality for both *Munatia australis* and *M. acutipennis*. The synonymy of *acutipennis* is here first established. The original material of *minor* had been dried from alcohol, which perhaps was the reason it was not more readily recognized by Bruner. Giglio-Tos was quite correct in his reference of the species to *Procolpia*, and the action of both Bruner and I. Bolívar in placing it in *Munatia* was due, in all probability, to their adherence to the orthodox criterion for separating the genera, i.e. an acuminate tegminal apex in *Munatia* and an obliquely truncate one in *Procolpia*. As shown on a preceding page there are a number of other features which separate the two genera, and further in *minor* there is a distinct apical obliquity of the apex, even though this area is more of the type seen in *Munatia*. I would regard *minor* as a divergent member of the genus *Procolpia*, more generalized than the other species in a number of respects, but not divergent toward *Munatia*, which is clearly well removed from any member of the genus *Procolpia*. I have before me the following material of *minor*:

Bolivia: Provincia Sara, 450 meters;[42] 1922; (J. Steinbach); 1 ♀. Santa Cruz; IX, 1917; 1 ♀.

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[41] Proc. Acad. Nat. Sci. Phila., 1907, p. 169.

PARAGUAY: Sapucay; II, 25 and III, 2-31, 1905; (Foster); 7 ♂, 4 ♀.[43]
ARGENTINA: Formosa, Prov. Formosa; III, 17 and 25, IV, 16, 1919; (P. Jorgensen); 3 ♂, 1 ♀.

All the individuals before me have the wing disk definitely blue, except the Santa Cruz female which has been dried from wet preservation, and has the coloration destroyed and the body structure distorted or shrivelled. The tone of the wing disk is cadet blue of Ridgway. There is some little variation in the tone of the general coloration, but not sufficient to cause any difficulty in the recognition of the species.

Range in size is relatively negligible, and an average Sapucay pair measure (in millimeters) as follows:

| | Length of body | Length of antenna | Length of pronotum | Greatest breadth of pronotum caudad across lateral lobes | Length of tegmen | Length of caudal femur |
|---|---|---|---|---|---|---|
| ♂ ..... | 27.0 | 15.0 | 6.5 | 5.2 | 27.8 | 14.5 |
| ♀ ..... | 38.6 | 19.0 | 11.0 | 8.6 | 33.0 | 19.5 |

Bruner[44] has recorded *minor* (as *Munatia minor*) from a broad range of localities, these including Pará, Rio de Janeiro, and Chapada, Matto Grosso, Brazil, and Montevideo, Uruguay. He also reported the species from San[to] Antonio de Guaporé, in the upper Madeira drainage.[45] Bruner mentioned that in the material from the localities then listed there was "great variations in robustness, length of wing, coloration, etc. . . . possibly sufficient to warrant the making of at least two, if not three species." I have seen no material from coastal Brazil nor the Amazon drainage, hence cannot comment on his remarks, further than to state that all the material before me represents a single species.

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[42] See footnote 8 of this paper.

[43] Recorded as *Procolpia minor* by Rehn in 1907 (Proc. Acad. Nat. Sci. Phila., 1907, p. 169).

[44] Annals Carneg. Mus., VIII, p. 47 (1911).

[45] Annals Carneg. Mus. VIII, p. 461 (1913).

## Explanation of Figures

### Plate I

Fig. 1.—*Procolpia emarginata* (Serville). ♂. Brazil. Lateral view. (Natural size.)

Fig. 2.—*Procolpia emarginata* (Serville). ♂. Brazil. Dorsal view. (Natural size.)

Fig. 3.—*Procolpia lankesteri* new sp. ♂ (*allotype*). Pózo Azúl de Pirris, Costa Rica. Lateral view. (Natural size.)

Fig. 4.—*Procolpia lankesteri* new sp. ♂ (*allotype*). Pózo Azúl de Pirris, Costa Rica. Dorsal view. (Natural size.)

Fig. 5.—*Procolpia inclarata* (Walker). ♂. Morales, Guatemala. Lateral view. (Natural size.)

Fig. 6.—*Procolpia inclarata* (Walker). ♂. Morales, Guatemala. Dorsal view. (Natural size.)

Fig. 7.—*Procolpia minor* Giglio-Tos. ♂. Sapucay, Paraguay. Lateral view. (Natural size.)

Fig. 8.—*Procolpia minor* Giglio-Tos. ♂. Sapucay, Paraguay. Dorsal view. (Natural size.)

### Plate II

Fig. 9.—*Procolpia emarginata* (Serville). ♀. Piassaguera, São Paulo, Brazil. Lateral view. (Natural size.)

Fig. 10.—*Procolpia emarginata* (Serville). ♀. Piassaguera, São Paulo, Brazil. Dorsal view. (Natural size.)

Fig. 11.—*Procolpia centurio* new sp. ♀ (*type*). Provincia Sara, Bolivia. Lateral view. (Natural size.)

Fig. 12.—*Procolpia centurio* new sp. ♀ (*type*). Provincia Sara, Brazil. Dorsal view. (Natural size.)

Fig. 13.—*Procolpia minor* Giglio-Tos. ♀. Sapucay, Paraguay. Lateral view. (Natural size.)

### Plate III

Fig. 14.—*Procolpia lankesteri* new sp. ♀ (*type*). Pózo Azúl de Pirris, Costa Rica. Lateral view. (Natural size.)

Fig. 15.—*Procolpia lankesteri* new sp. ♀ (*type*). Pózo Azúl de Pirris, Costa Rica. Dorsal view. (Natural size.)

Fig. 16.—*Procolpia inclarata* (Walker). ♀. El Zapote, Chiapas, Mexico. Lateral view. (Natural size.)

Fig. 17.—*Procolpia inclarata* (Walker). ♀. El Zapote, Chiapas, Mexico. Dorsal view. (Natural size.)

Fig. 18.—*Procolpia minor* Giglio-Tos. ♀. Sapucay, Paraguay. Dorsal view. (Natural size.)

## Plate IV

(All greatly enlarged)

Fig. 19.—*Procolpia emarginata* (Serville). ♀. Piassaguera, São Paulo, Brazil. Dorsal outline of fastigium.

Fig. 20.—*Procolpia emarginata* (Serville). ♀. Piassaguera, São Paulo, Brazil. Profile of fastigium.

Fig. 21.—*Procolpia emarginata* (Serville). ♀. Piassaguera, São Paulo, Brazil. Distal portion of ventral ovipositor valves as seen from venter.

Fig. 22.—*Procolpia centurio* new sp. ♀ (*type*). Provincia Sara, Bolivia. Dorsal outline of fastigium.

Fig. 23.—*Procolpia centurio* new sp. ♀ (*type*). Provincia Sara, Bolivia. Profile of fastigium.

Fig. 24.—*Procolpia centurio* new sp. ♀ (*type*). Provincia Sara, Bolivia. Distal portion of ventral ovipositor valves as seen from venter.

Fig. 25.—*Procolpia lankesteri* new sp. ♀ (*type*). Pózo Azúl de Pirris, Costa Rica. Dorsal outline of fastigium.

Fig. 26.—*Procolpia lankesteri* new sp. ♀ (*type*). Pózo Azúl de Pirris, Costa Rica. Profile of fastigium.

Fig. 27.—*Procolpia inclarata* (Walker). ♀. El Zapote, Chiapas, Mexico. Dorsal outline of fastigium.

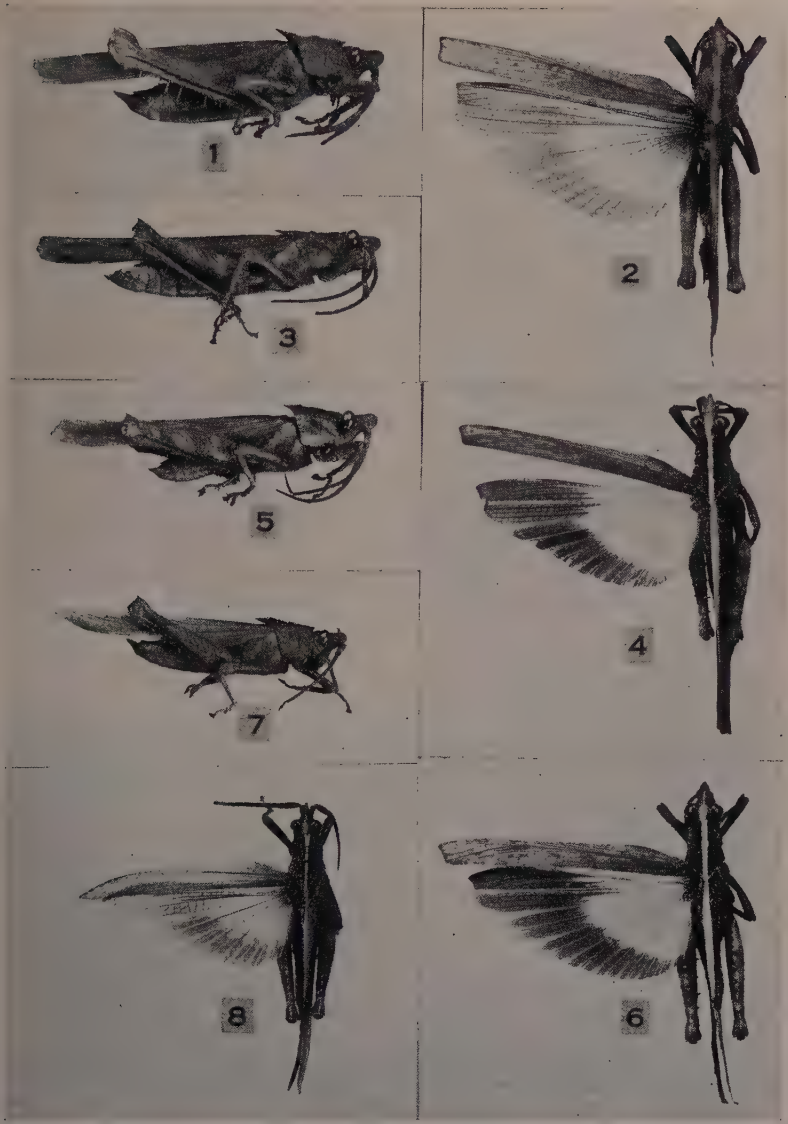
Fig. 28.—*Procolpia inclarata* (Walker). ♀. El Zapote, Chiapas, Mexico. Profile of fastigium.

Fig. 29.—*Procolpia inclarata* (Walker). ♀. El Zapote, Chiapas, Mexico. Profile of genicular region of caudal limb.

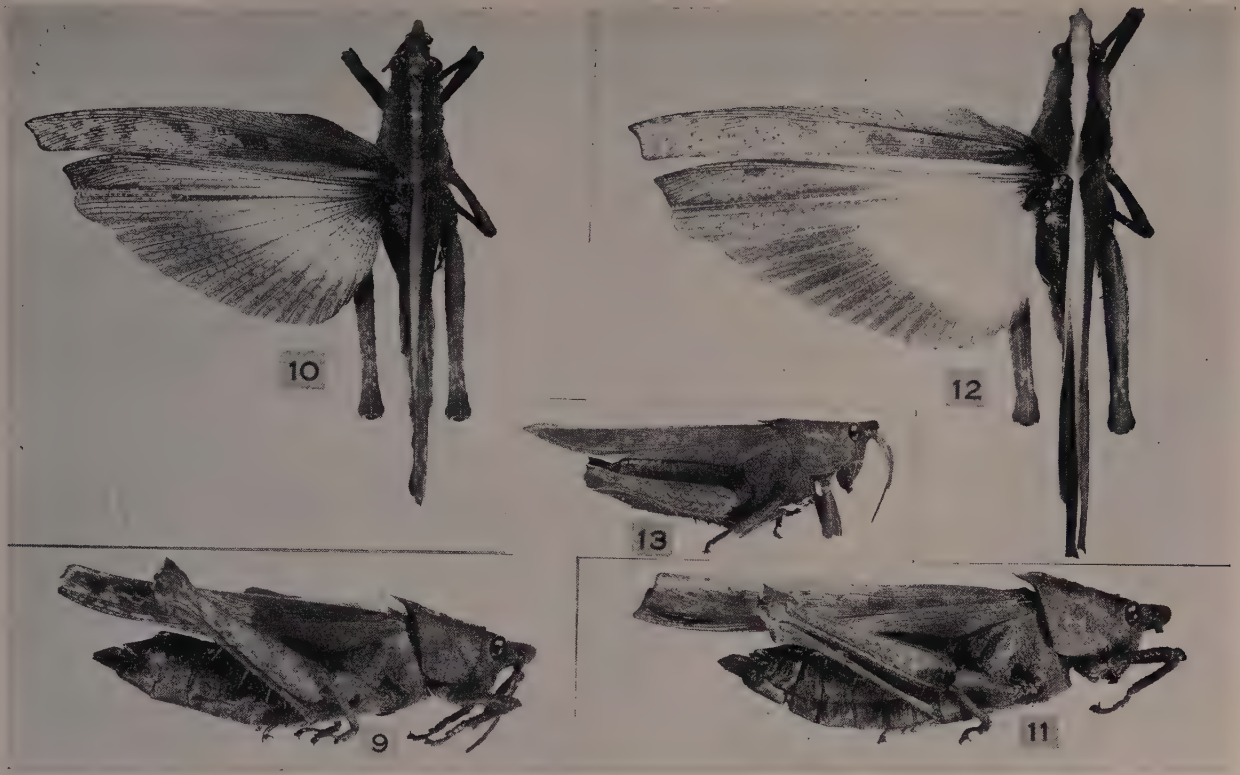
Fig. 30.—*Procolpia minor* Giglio-Tos. ♀. Sapucay, Paraguay, Dorsal outline of fastigium.

Fig. 31.—*Procolpia minor* Giglio-Tos. ♀. Sapucay, Paraguay. Profile of fastigium.

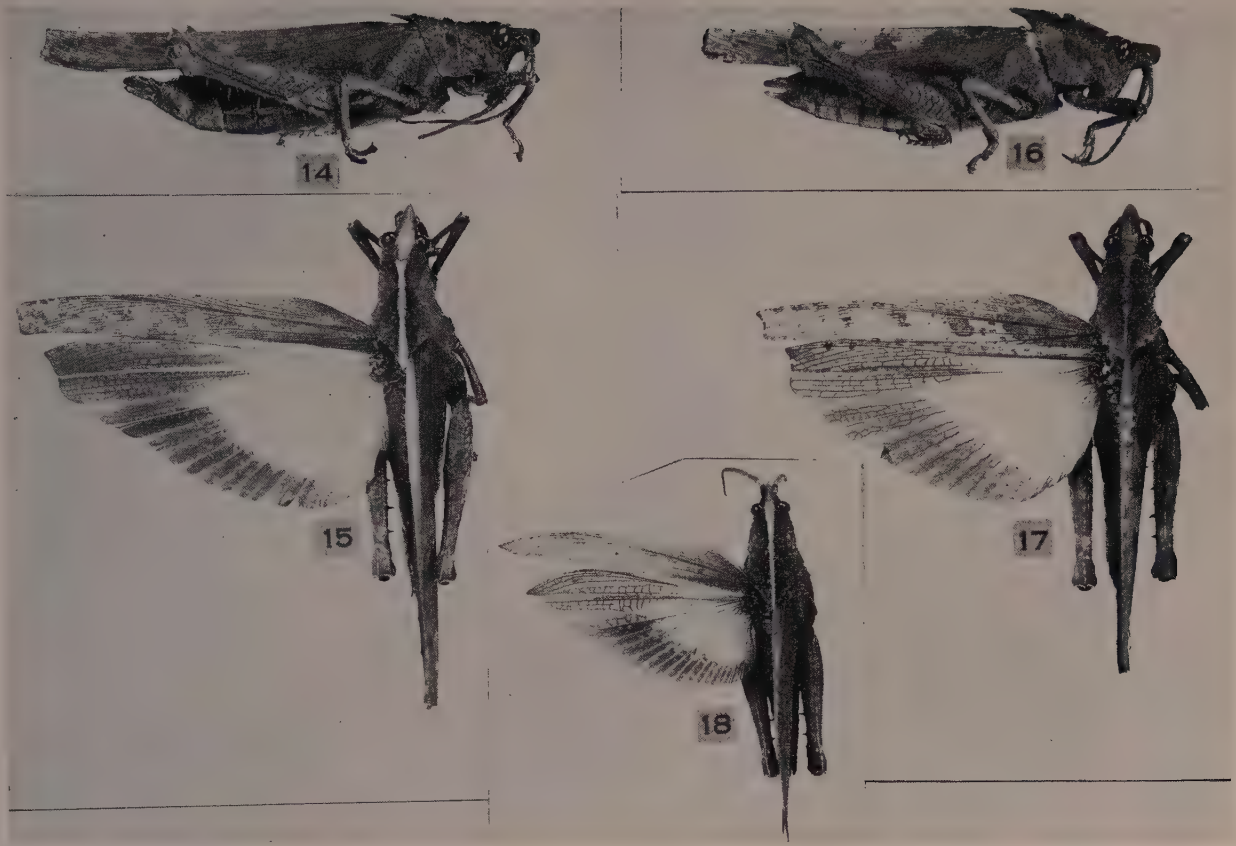
Fig. 32.—*Procolpia minor* Giglio-Tos. ♀. Sapucay, Paraguay. Profile of genicular region of caudal limb.




REHN—GENUS PROCOLPIA




REHN—GENUS PROCOLPIA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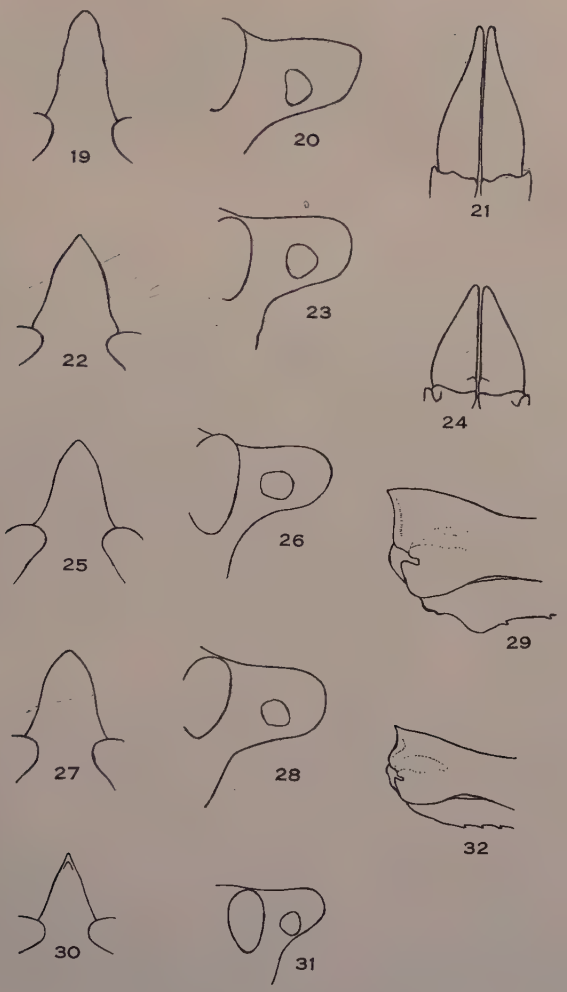


REHN—GENUS PROCOLPIA

# SOME FURTHER NOTES ON THE STAGBEETLES, WITH ESPECIAL REFERENCE TO FIGULINAE (COLEOPTERA: LUCANIDAE)

BY BERNARD BENESH
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The present contribution is primarily a report on a small lot of *Figulus*, from the British Museum (Nat. Hist.), London, containing four new species to entomological science, plus additional corrections to the "Catalogue illustré" of Didier and Seguy (1953:b), and some pertaining notes and clarifications, long overdue, on the Figulinae.

The *Figulus* reviewed, a small aggregation of eleven specimens from the Madagascan region, is apparently an accumulation of several years set aside for identification. We are deeply obligated to Mr. E. B. Britton, Entomology Department, British Museum, for the privilege of studying and reporting on this interesting lot of stagbeetles, and thank him heartily for the continued cooperation in our direction.

## FIGULUS Macleay

On page 179, of the "Catalogue illustré" by Didier and Seguy (1953:b), under *Figulus* Mcleay, appears the following synonymical citation:

*Eudora* Westwood, 1834 (nec Castelnau), Ann. Sc. Nat., I, p. 119 et Ent. Mag. V, 1838, p. 261.

The citation is erroneous, apparently a warped interpretation by the authors of a correction by Boileau, to Felsche's Verzeichniss (1898), published in the Ann. Soc. Ent. Fr. 1898, p. 431 (distributed in March, 1899), reading as follows: "*Figulus* MacLeay.—Ajouter: *Eudora* Cast. (p.). Westw. Ann. Sc. Nat., sér. 2, I, p. 119. Id., Ent. Mag. V, p. 261."

The correction should be read thusly: *Figulus* Macleay.—Ajouter: Westw., Ann. Sci. Nat., Zool., ser. 2, I, 1834, p. 119;

Ent. Mag. V, 1838, p. 261.—*Eudora* Cast. (p.) (= pars), adding: Hist. natur. d. Ins. Coleop. II, 1840, p. 174.

Westwood never used the name *Eudora,* nor had he ever alluded to it in any of his contributions, being aware of its preoccupancy;[1] a glance into the cited Annales should have convinced the authors that Boileau had erroneously placed Castelnau's *Eudora* (1840) citation preceding those of Westwood (1834, 1838), pertaining strictly to *Figulus.*

All the species of *Figulus,* herein described as new, have the pronotal disk foveate, and the anterior margin tuberculate. The species *approximatus, seychellensis* and *scotti* have the antennae composed of nine segments, while *magnus, striatus* and *vinsoni* have a ten-segmented antenna.

Mandibles of all the species are porrect, shorter than the head, excepting *magnus,* blade-like, arcuate externally and keeled, with a simple tooth in the middle of inner margin (cf. figs. 3, 4 and 5).

The elytra of the species are so similar and uniform in appearance, that it will suffice to mention one and cover all. The elytra are striate their full width, six striae extending from the suture to humerus, the striation rather irregular and confused on lateral declivity; the striation consists of circular punctures, which are rather close, and the interstices fairly convex.

The tibiae of the intermediate and posterior legs are unispinose in all the species, except *magnus,* which has the intermediate tibiae tri-spinose, first spine in distal third, the other two smaller and above the first, posterior tibiae unispinose.

**Figulus seychellensis** Scott (1912) Fig. 1, mentum; 3, head and pronotum.

The present species is one of the smallest *Figulus* to come to our notice, and is 7 mm. long and 2.2 wide, evidently a member of the *marginalis* group. For definition of the species the student is referred to the original description, annotated here with the description of the mentum, omitted from the original.

The mentum, in many instances the sole distinguishing character of species in the genus *Figulus,* is characterized thusly: mentum (fig. 1) anteriorly feebly emarginate, antero-lateral angles broadly arcuate, laterally convergent to base and slightly keeled, anterior area pockmarked, conspicuously sculptured basad with two large, irregularly shaped glabrous pits, of which the right is larger.

[1] cf. Benesh, B.: Ent. News, lxvi, p. 62, 1955.

A cotype, Silhouette 1906, Seychelles Exp., Percy Sladen Trust Expedition 1911—497, submitted for comparison by the British Museum (Nat. Hist.), is, as indicated above, slightly smaller than the designated type specimens, recorded to be 9-9.5 mm. Apparently this cotype represents the insect to which Scott referred in the description as having been bred from a larva of which the measurement given (6.75 mm.) is slightly less than that obtained by the author by the use of an ocular scale and mechanical stage of a microscope.

**Figulus approximatus** Benesh, n. sp. Fig. 6, mentum.

Larger than the cotype of *seychellensis*, black, nitid. In habitus resembling in every respect *F. marginalis* Rits., but smaller than it.

Diverging from *seychellensis* (from the cotype studied) in size, and the mentum; mentum slightly broader than long, anterior margin feebly emarginate, laterally nearly parallel, base straight; lateral keel narrow, as is also the basal ridge, central hollow impunctate, with two transverse impressed lines, the anterior simple, the lower branched at right, anterior area sculptured by oblong, irregular pockmarks.

Length 9.0 mm.; width 2.6 mm.

Type: 1 example, # 1763, Isle of France, in collection of the British Museum (Nat. Hist.), London.

**Figulus marginalis** Rits. (1879)

The species is inserted here solely for comparison, and is 10.5 mm. long, collected at Soekaranda, January 1894; it was identified and presented by Monsieur M. de Lisle of Paris, to whom we extend our thanks for this addition to our collection.

**Figulus scotti** Benesh, n. sp. Fig. 2, mentum; 4, head and pronotum.

In habitus similar to the preceding two species, but in proportion broader and differing by the truncate anterior angles of the pronotum.

Head with anterior margin concave, clypeus produced and anteriorly feebly arcuate; antero-lateral angles broadly rounded, thence gently diverging and, without any emargination, forming the canthi; canthus broad, exceeding in width the eye, behind narrowing progressively to base, the occiput without the gibbosities or conical tubercles present in *marginalis*. Mentum laterally keeled and tuberculate, the tubercles situated more anteriorly (basad in *marginalis*), base nearly impunctate (four or five minute punctures in evidence), hollowed in center, sculptured from the center to front by large, irregular pockmarks.

Pronotum with anterior angles produced, obliquely truncate, slightly arcuate and thence parallel to basal angles, angles rounded, base in center broadly convex, basal half of lateral margins slightly crenate; puncturation in lateral areas ovate (in *approximatus* circular).

Length 10.2 mm.; width 3.2 mm.

Type: 1 example, # 1762, Mauritius, in collection of the British Museum (Nat. Hist.), London.

The species is named in honor of Hugh Scott, who contributed to our knowledge of lucanid fauna of the Seychelles Islands.

**Figulus vinsoni** Benesh, n. sp. Fig. 5, head and pronotum; 7, mentum.

Resembling superficially *striatus* (Oliv.), in the form of the canthi, but differing in the broad, truncate, antero-lateral angles of the pronotum, and the mentum.

Head excavated in center, ocellate-punctate within, the puncturation gradually reduced in size towards the occiput, with two conical tubercles on line with base of the eyes; clypeus elongate, apex bifid; canthus broad, nearly straight laterally and diverging to posterior, posterior angles obtuse, thence regularly narrowing to base. Mentum broader than long, anterior margin semicircularly excised in center, angles broadly rounded, laterally gently converging to base, sculptured centrally with two large, circular, shallow impunctate pits, situated abreast, and surrounded by irregular, fairly large pockmarks.

Pronotum broader than long, anterior margin imperceptibly sinuous, antero-lateral angles produced and broad, truncate, right-angled, thence laterally parallel, diverging from the center to basal angles, the latter broadly rounded, base sinuous with center produced; puncturation throughout is larger than in the preceding species, circular.

Length 10.1 mm.; width 3.5 mm.

Type: 1 example, # 1775, labeled: 2 marked impressions on mentum, Mauritius, in collection of the British Museum (Nat. Hist.), London.

Paratype: 1 example, # 1761, Mauritius, same depository.

Described from 2 examples, of which one is black, the other mahogany red, the latter apparently immature, both nitid. The species is dedicated to Jean Vinson, of Moka, Mauritius, who materially contributed to our knowledge of Mauritian coleopterous fauna.

**Figulus magnus** Benesh, n. sp. Fig. 8, mentum.

One of the largest *Figulus* discovered, resembling on a larger scale *F. striatus* (Oliv.), but distinct; black, nitid.

Head anteriorly broadly concave (straight in *striatus*), medially depressed, sparsely and remotely punctured, front above the clypeus with a small tubercle, occiput bigibbose; canthus as in *striatus* (quite similar to *vinsoni*, fig. 5). Mentum transverse, anteriorly bilobed, sides arcuate and converging to base, laterally keeled, the keel terminating in a post-median tubercle, declivous to base; center hollowed and transversely terrace-like sculptured, base produced and punctured. Mandibles porrect, as long as the head, externally arcuate and slightly rounded, strongly keeled on top, inner margin nearly straight, each mandible with a basal tooth, right with one ante-median obtuse tooth, left with two, situated one above the other, lower smaller and slightly in advance of the upper one.

Length 15.3-19.8 mm.; width 5.1-6.7 mm.

Type: 1 example, 19.8 mm., Seychelles Is., 1904—57, in collection of the British Museum (Nat. Hist.), London. Paratypes: 5 examples, Seychelles, J. A. de Gaye, 1910—354, of which 3 examples are contained in collection of the British Museum (Nat. Hist.), and 2 in collection of the author, the first and fifth of the paratypic series, 17.4 and 15.3 mm. long respectively.

The distinguishing characters between *magnus* and *striatus*, the most nearly allied of the previously described species, can be tabulated thus:

| *magnus* n. sp. | *striatus* |
|---|---|
| Mandibles as long as the head | Mandibles distinctly shorter |
| Pronotal anterior angles produced, extending beyond front margin | Anterior margin advanced, angles not produced |
| Pronotum diverging posteriorly, broadest in basal third | Anterior two-thirds parallel, converging to basal angles |
| Discal fovea of pronotum short, more basad | Discal fovea longer, equidistant |
| Scutellum smaller (.4 mm.) (example 17.4 mm. long) | Scutellum longer (.4 mm.) (example 11.8 mm. long) |
| Humeri right angled, spine vestigial | Humeri slightly produced, spine distinct |
| Elytra broadest at the juncture of median and apical third | Elytra broadest in middle |
| Punctures of striae small, shallow, contiguous | Punctures larger, deeper, distinct |
| Sutural interstices even, second and third intervals (from suture) broadest, even | Sutural interstice deeply grooved; intervals uniform, convex |
| Nine striae distinct, extending to lateral margin | Six striae to humerus, declivous three indistinct, confused |

The examples here described have been set aside by the late G. J. Arrow, in belief that they possibly represented a local race of *striatus*; due to the numerous distinctive discrepancies tabulated above, the insects are considered to be a valid species and are so here recorded. The insects are reported to be attacking the stems of coconut palms, hence they should be considered obnoxious pests.

**Figulus striatus** (Oliv.) Fig. 9, mentum.

The seven examples of *F. striatus*, brought here for comparison and definition of *magnus*, range from 11.0 to 15.4 mm. in length, and 3.7 to 5.2 mm. in width; they represent two localities of the Madagascan region, Madagascar and Mauritius.

The mentum of *striatus* is less lobate anteriorly (not as deeply excised as in *magnus* (fig. 8)), more parallel laterally, lateral tubercles more anterad than in *magnus*, base more produced and less sculptured, anterior half less hollowed and irregularly pock-marked, the latter becoming rugulose in smaller examples.

During the course of present investigations the following species, hitherto not so reported, have the antennae composed of nine segments: *canaliculatus* Nagel, *lilliputanus* Westw. and *papuanus* Gestro, to which can be added *F. fissicollis* Fairm. and *manillarum* Hope et Westw., reported by Benesh (1950) to have similar antennae.

**Figulus fissicollis** var. **gazellae** Kriesche

The variety *gazellae* Kriesche (1922), described as a subspecies, should be assigned to *foveicollis* (Boisd.), not to *fissicollis*, as recorded by Didier and Seguy (1953:b).

**Figulus foveatus** Benesh

In describing *Figulus foveatus*, Benesh (1950) by inadvertence overlooked the fact that Kriesche (1922) had applied the name *foveatus* to an insignificant aberration of *F. mento* Albers.

In deference to Kriesche's priority, to avoid duplication of names and prevent confusion in nomenclature, the name *foveatus* used by Benesh is herewith withdrawn and *philippinensis* substituted instead.

**Figulus integricollis** Thomson

In note 97, on page 58 of the "Catalogue illustré" Didier and Seguy (1953:b) declare: "*Figulus integricollis* Thoms. is distinguished from all the other species of the genus by its size and its very remarkable pronotum, without the median longitudinal fovea," adding that Thomson suggested the species should form a distinct separate section in the genus. This statement is apparently based on a small series of large individuals only, without reference and consideration of the intermediate or minor forms.

In a lot of *F. integricollis* examined, taken by K. L. Maehler in one colony on Guam and representing various developments, the above statement is denied credence. In the lot, all small individuals showed trace of a fovea, the intermediates a less distinct one, gradually obliterated as the maximum form was approached. It is very probable that the smaller, foveate examples may represent the recent new addition, by Didier and Seguy (1953:b), to the lucanid fauna of Guam—the nondescript *F. laticollis* Eschscholtz.

We are impelled to record here that *F. integricollis* is not the only species with immaculate pronotum, as asserted by Didier and Seguy; added should be *F. lansbergei*, described by Ritsema (1880), who remarks: "It occupies a position quite by itself in the genus, the pronotum being entirely smooth without a central fovea.... It has the first mentioned characteristic in common with *F. integricollis* Thoms." ... which makes us realize that the species *lansbergei*, and even its description, is unknown to Didier and Seguy.

**Figulus laticollis** Eschscholtz (nom. nud.)

In a previous contribution Benesh (1950) discussed the status of *F. laticollis* Eschscholtz, declaring the species nondescript and the name a nomen nudem, asserting that any assignment of the name *laticollis* to Reiche is positively erroneous and invalid.

Although the insect remains nondescript to this date, and the purported locality—Philippines—is yet to be verified, the insect had been recorded by Ritsema (1895) from Borneo (without a definite locality), by Miwa and Chûjo (1936) from Formosa (Kotosho) and finally by Didier and Seguy (1953:b) from Guam

(note remark under *integricollis* above), the last authors again crediting it to Reiche. It should be interesting and enlightening, assembling for comparison the specimens from the four recorded localities, to discover what criterion had been used for definition of *laticollis*, by the authors cited above.

In referring to *laticollis* Didier and Seguy (1953:b) remark: " Espèce à rayer des catalogues. L'insecte désigné sous ce nom aurait été donné à Dejean par Eschscholtz . . . Reiche en parle dans sa critique de l'ouvrage de Burmeister (Ann. Soc. ent. France, (3) I, 1853, p. 184 [should be p. 84, B.B.]). Aucun des auteurs qui on cité cette espèce n'en a donné de description," . . . the last positively not exempting Reiche!

Reiche's criticism must not be construed as a description, for which assertion we submit, as our authority, the criticism verbatim: " C'était le *Figulus haedulus* de la collection Dejean, M. Burmeister eût pu mentionner deux espèces de plus, données par Eschscholtz à M. Dejean sous le noms de *Figulus laticollis* et *angustatus*, et provenant des îles Philippines." The constant use of Reiche's name, in some quarters, as the author of *laticollis*, is rather surprising; its continued repetition appears to be a deliberate attempt to purloin the priority, due to Eschscholtz, crediting it to someone who had nothing whatsoever to do with naming of the insect.

**Figulus lilliputanus** Westwood

The late G. J. Arrow (1943) considered *F. lilliputanus* Westw. synonymous to *fissicollis* Fairm., stating: " like other widely distributed species, is rather variable and has received many names. One of these is *lilliputanus* Westw. and another is *monochromus* Didier (1930), of which the British Museum contains specimens taken together with the type by Muir."

Had Arrow carefully examined the two species in question, the foregoing statement would never have been made. *F. lilliputanus*, in proportion with *fissicollis*, is broader, more depressed, with elytral interstices more flattened; in coloration it is light to dark mahogany, never black as *fissicollis*; the most conspicuous character is the transversely rugulose mentum, which in *fissicollis* has two deep circular pits, situated abreast.

As far as known today *lilliputanus* is confined to the northern and eastern portion of Australia; the other localities, cited by Arrow, are referable to the widely ranging *fissicollis*.

**Figulus manicatus** Didier et Seguy

While describing *F. manicatus*, Didier and Seguy (1953:a) omitted 1) to mention the antennae, whether nine- or ten-jointed, 2) failed to describe the mentum, a very important part of anatomy, used extensively in characterization of *Figulus*, 3) neglected to mention the number of striae on the elytra, and 4) forgot to record the species at all in their "Catalogue illustré" (1953:b).

**Figulus papuanus** Gestro

Another species considered by Arrow (1938) to be conspecific with *fissicollis* Fairm., but readily distinguished as a distinct species, is known thus far only from New Guinea.

*F. papuanus* differs from *fissicollis* in its larger form, the prominent cephalic ridges above the eyes, extending from the anteocular bosses halfway towards the occiput, as well by the strongly produced and elevated pronotal front.

**Figulus lupinus** Kriesche

The present insect, recorded by Didier and Seguy (1953:b) as a valid species, was declared by Benesh (1950) to be synonymous to *fissicollis* Fairm., representing the maximum development of the species.

## NIGIDIUS Macleay

**Nigidius kolbei** Kriesche

In declaring *N. kolbei* Kriesche (1920) synonymous with *N. semicariosus* Fairm., Didier (1931) avers: "Examples of this species we have recently procured from M. le Moult; named *kolbei* by Kriesche, it is Fairmaire's *semicariosus*, described in 1891, which contrary to Kriesche's opinion (Arch. f. Naturg. 1920, p. 547) is completely different from *delegorguei* Thomson."

Three examples of a *Nigidius*, submitted for identification by Monsieur de Lisle, Paris, and which, of course, had been compared with *N. semicariosus*, agree in every respect with Kriesche's diagnosis of *kolbei*, proving the declared synonymy erroneous and invalid.

Just as the synonymy is proven incorrect, so is likewise the bibliographical reference, p. 547, wrong. The page cited does not pertain to any of Kriesche's contribution bearing on Lucanidae; it should, possibly, be applied to Peringuey's Addenda, Trans. S. Afr. Philos. Soc., xvii, 1909, p. 547, in which the description of *N. rhodesianus* is recorded.

Kriesche records *N. kolbei*, a unique, from "Niam-Niam, Semnio." The three examples, alluded to above, bear more precise localities: Amala River, Sotik (B. E. A.), and Rives du Moyen Chari, de Fort Archambault, aux niellins, Mission Chari-Tchad, Dr. J. Decorse, 1904 (2 examples).

**Nigidius oberndorferi** Nonfried

While recording the species of Lucanidae contained in the Boileau collection, Didier (1928) assigned *N. oberndorferi* to *Figulus*, without indicating his reason for the action.

During the course of present study, two examples of *N. oberndorferi* have been examined and found quite distinct from *Figulus*, in the form of mandibular armature, shape of body, and the scutellum. The mandibles of *N. oberndorferi* are tubular in form, bidentate in apical half, the teeth robust, distinct, situate above each other; in *Figulus* (compare figs. 3, 4 and 5) the mandibles are flattened, keeled externally, the dentition generally on the same plane. Body of *oberndorferi* is parallel, subcylindrical, approximating in every respect, except in size, the female *Nagelius madagascariensis* (Cast.) (comp. figs. 12, 14 and 15), while in *Figulus* the body is depressed and posteriorly somewhat attenuated; the scutellum is as broad as long, sides parabolic from base to apex, cuneiform or wedge-shaped in *Figulus*.

For the specimens here reproduced in figures 14 and 15, we are indebted to Monsieur de Lisle; specimen # 14, was collected at Diego Suarez; # 15 at Sandramora Foret, Manatratra, both localities of Madagascar. Precise measurements in millimeters of the two examples depicted are the following:

| | # 14 (length x width) | # 15 |
|---|---|---|
| Head | 1.9 x 5.2 | 2.0 x 4.9 [2] |
| Mandibles | 1.6 .... | 1.3 .... |
| Pronotum | 4.0 x 5.9 | 3.9 x 5.5 |
| Elytra | 8.4 x 5.8 | 8.4 x 5.5 |

[2] Head slightly more protruding.

**Nigidius vagatus** Felsche (nec Fairmaire) (nom. nud.)

Several years ago in an attempt to transcribe, for ready reference, the description of *Nigidius vagatus*, it was discovered that the description is nonexistent and the species imaginary. In further exploration of the matter, to detect when the *vagatus* first appeared in entomological literature, it was noted that *vagatus* was never recorded in the Zoological Record, nor had it been cited by Nonfried (1891), in Verzeichniss der Lucaniden, beschrieben von Jahre 1875 bis Ende des Jahres 1889.

The name *vagatus*, in every sense a nomen nudem, first appears in Felsche's Verzeichniss (1898), who, through lapse of memory, is actually author of the name, credits it to Fairmaire (Ann. Soc. Ent. Fr. (6) viii, 1888, p. 339). Therefore, to rectify this long standing error, we are compelled to expunge Fairmaire's name as the author of the name and substitute Felsche as the true protologist.

It is inconceivable that for fifty-seven years, since the appearance of Felsche's Verzeichniss, all workers as Arrow, Boileau, Kriesche, Möllenkamp, Nagel, Ritsema, van Roon, and last but not least Didier and Seguy, had overlooked the error. This can be adduced to careless compilation of contemporary catalogues; van Roon recorded the error twice (1905, 1910), repeated ad nauseam by Didier and Seguy (1953:b).

## NOVONIGIDIUS Dudich

*Caprinigidius* Didier, Etudes sur les Coleop. Lucan. du Globe, fasc. 3, 1928, p. 67, new syn.

The genera *Novonigidius* Dudich (1923) and *Caprinigidius* Didier (1928) are congeneric, and the former having priority should automatically submerge *Caprinigidius*, relegating it, as another redundant name, into synonymy.

The species *ornatifrons* and *trifurcus*, for which the genera *Novonigidius* and *Caprinigidius* were devised, differ principally in the shape of the body; *N. ornatifrons* Dudich is somewhat more cylindrical than *trifurcus* (Didier), the latter with the cephalic median tubercle more pronounced, in all other respects conforming to each other.

*N. ornatifrons* Dudich, originally recorded from Borneo, should be added to the Philippine fauna; the species was recently taken on Mindanao.

## GANELIUS Benesh *

**Ganelius madagascariensis** (Castelnau) Figs. 10, 11 ♂; 12, 13 ♀.

The recently renamed *Eudora madagascariensis* Cast.,[3] is figured here to demonstrate its close affinity to *Nigidius oberndorferi* Nonfried (figs. 14, 15), considered by Didier to be a *Figulus*. As can be readily discerned, the mandibles of *N. madagascariensis* ♀ are quite similar to *N. oberndorferi*, which poses the question whether the latter should not be assigned to *Ganelius*, rather than to *Figulus*.

The male, fig. 10 dorsal aspect, 11 lateral aspect, originates from Baie d'Antongil; the female, fig. 12 dorsal aspect, 13 lateral aspect, is from S. de la baie d'Antongil, locations of the northeastern coast of Madagascar.

Measurements of the example figured (in millimeters):

| | ♂ length x width | | ♀ |
|---|---|---|---|
| Head | 2.0 x 7.2 | | 1.9 x 6.0 |
| Mandibles | 3.2 .... | right | 1.75 ... |
| | | left | 1.5 ... |
| Pronotum | 4.9 x 7.5 | | 4.7 x 6.6 |
| Elytra | 9.0 x 6.9 | | 9.9 x 6.4 |

For this valuable addition to our reference collection we are obligated to Monsieur M. de Lisle, Paris, to whom we herewith extend our sincerest thanks.

## XIPHODONTUS Westwood

*Cardanopsis* Boileau, König. Schwed. Akad. Wiss. VII (17) 1909, p. 338, recap., syn.

In note 99, on page 59, of the "Catalogue illustré," Didier and Seguy (1953:b) severely criticize Arrow, for the suppression of *Cardanopsis* Boil. (1909), stating, there is real danger in suppressing species without examination, etc.

To refute this unjust accusal, we submit: "A supposed new genus was formed in 1909 by Boileau for an African species which

* As my genus *Nagelius* is preoccupied by *Nagelius* Lewis (Ann. Mag. Nat. Hist. (8), vol. 4, p. 294, 1909), I propose *Ganelius* to replace my preoccupied name.

[3] B. Benesh, Ent. News, lxvi, p. 62, 1955.

he called *Cardanopsis bicolor. The type of this, which has been kindly sent to me for examination by Dr. Lundblad,*[4] of the Stockholm Museum has proved to be a female of the peculiar African genus *Xiphodontus . . .*", which certainly should not leave a doubt whether the right insect was properly examined, nor about the propriety of Arrow's (1938) action.

While the authors are deeply concerned about the status of *Cardanopsis*, proved to be another redundant name in Lucanidae, they are rather unconcerned about the matter they diffuse. Thus in illustrating what is purported to be *X. antilope* Westw., figures 6 and 7 on plate 111 (CXI) of their Atlas (1953:c), the authors actually ultilize a slightly enlarged reproduction of figures which Boileau (1909) used originally for portraying *X. bicolor.* Hence the *Xiphodontus bicolor* (Boil.) should be catalogued in this manner:

*bicolor* (Boil.), König. Schwed. Akad. Wiss. VII (17) 1909, p. 338, f. ♂, ♀, *Cardanopsis.*—Arrow, Ann. Mag. Nat. Hist. (11) II, 1938, p. 51.—Didier et Seguy, Encycl. Ent., A, XXVII, 1953, p. 58, nota 99.

*antilope* Didier et Seguy, loc. cit. A, XXVIII, 1953, Atlas, t. 111, f. 6 ♂, 7 ♀, nec Westwood (1838).

## DENDEZIA Basilewsky

**Dendezia renieri** Basilewsky

This recently described lucanid (Basilewsky, 1952) resembles somewhat, in the male sex, our *Popilius disjunctus* Illiger,[5] in possessing a forward-directed cephalic horn; the species is dimorphic, broad, robust, 22-25 mm. long, convex, head and pronotum black, nitid, elytra parallel, reddish-brown, edged at base and the margins in black, and the spination of intermediate and posterior tibiae quite obsolete or vestigial.

According to larval characters, studied and described by van Emden (1952), the species is related to *Dorcus, Hemisodorcus* and *Gnaphaloryx*, and not at all to Figulinae. Despite this assertion, description and figures of the buccal appendages of the adults and their genitalia clearly demonstrate the insect to be a true figulinid.

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[4] The italics are the author's.

[5] *Passalus cornutus* of some authors.

It must be recorded here that the three genera above, purported to represent a homogenous group, actually belong to two distinct divisions: *Dorcus* is a member of the numerous Dorcinae (buccal appendages uncinate in female), and *Gnaphaloryx* and *Hemisodorcus* sensu stricto (Thomson, 1862), not the agglomeration listed under the name by Didier and Seguy (1953:b), are members of Pseudodorcini, a linkage between Dorcinae and Lucaninae, with sectional characters similar to the latter, i.e., both sexes with buccal appendages simple.

We propose for the genus *Dendezia* Basilewsky a new tribe Dendeziini, and positively assign the tribe to Figulinae, distinguished from members of Figulini and Nigidiini by the dorcine antennae, tri-lamellate clava, spongiose throughout, and the eyes half-way circumscribed by the canthi.

## HOPLOGONUS Parry

A careful examination of examples of the Tasmanian genus *Hoplogonus* Parry (1876), hitherto included in Dorcinae, proves representatives of the genus have sectional characters analogous to Figulinae, due to which the insects must be transferred to the latter subfamily.

The buccal appendages of *Hoplogonus* are especially interesting; the characteristic uncus of Figulinae is here well developed, forming a strong hook. Maxillary palpus of male is slender, tubular, slightly depressed; first, second and third segments enlarged distad, the last two segments somewhat club-shaped; first segment short (.5 mm.), second three and one-half times as long as the first, third half the length of the second, ultimate segment spindleform and slightly longer than the third.

The female genitalia resemble those figured by Benesh (1945) for *Apterodorcus bacchus*, with styli somewhat hatchetshaped, internally less angulate and externally rounded.

For the material used in this study, a gift from the British Museum (Nat. Hist.), we are deeply indebted to Mr. E. B. Britton, to whom we extend herewith our sincere thanks.

## LISSOTES Westwood

In describing the genus *Lissotes*, Westwood (1855) affirms: "*Figulo Nigidio*que affine, mandone maris uncinato," indicating

homogeneity of the new genus, with sectional characters analogous to Figulinae, compelling us to remove the genus from Dorcinae, where it had been to recent time, and assign it to Figulinae, according to indicated phylogeny.

The members of the genus, recorded from the eastern and southeastern part of Australia, Tasmania and New Zealand, show some dissimilarity and unequal standing in their extensive range, one group endemic to New Zealand being quite distinct from another group, restricted to Tasmania. These groups can be divided, according to their external features, into three main groups, *capito, cancroides* and *reticulatus* respectively, which will sooner or later be subdivided or form new genera, when the limitations of the groups are better known. Lea (1910) in his monograph on the genus writes: " This genus of stagbeetles is almost confined to Tasmania (a single species being known from Victoria and two from New Zealand)", apparently considering the other five species, at the time known from New Zealand, to belong somewhere else.

For this plastic genus we propose the tribe Lissotini, and include in it the apterous *Hoplogonus*, recognized from members of other figuline tribes by having eyes nearly entire, or the canthi only slightly encroaching on the anterior part of the eyes.

## SYNDESUS Macleay

### Syndesus götzeni Kaeseberg

In the narrative on the African expedition of Count von Götzen, entitled "Durch Afrika von Ost nach West", Oberlehre Kaeseberg recorded the Coleoptera taken during the expedition. On page 396, of the first edition of the above work (1895), appears the name *Syndesus götzeni*, without a description of the insect, and again on page 426, of the second edition (1899).

It is rather doubtful whether the insect really was a representative of the genus *Syndesus*, and we strongly suspect that it was a *Xiphodontus*. Herr Nagel, when applied to for information, advised us that the insect is non-existent; the name *götzeni* is a nomen nudem, and therefore should be discarded.

## AEGOMORPHUS Dejean

**Aegomorphus** Houlbert

The genus *Aegomorphus* of Houlbert (1914) is preoccupied, the name being used by Haldeman (1847) for a genus of Cerambycidae. Dr. Chapin, to whom we applied for information concerning the synonymy, replied (letter Oct. 16, 1934): "I have looked up the genus *Aegomorphus* of Haldeman and find that the name was taken from the Dejean catalogue 1836, where it was a nomen nudem and was adopted by Haldeman for a new species of longicorn found in this country. The citation to Haldeman's paper is,—Trans. American Philosophical Society, series 2, vol. 10, p. 45, 1847. The genus is properly described, a description of the type, i.e., *decipiens*, is included and there is no doubt that Haldeman's use of the name invalidates Houlbert's later use of the same name in a different sense."

Due to some similar characters, for example the scarification of the cheeks (from which *ruditemporalis* is derived) and the distal dilation of the tibiae, we assign the species *ruditemporalis* Houlbert to *Aulacostethus* Waterhouse, and append to the latter as a new synonym *Aegomorphus* Houlbert (1914), nec Haldeman (1847).

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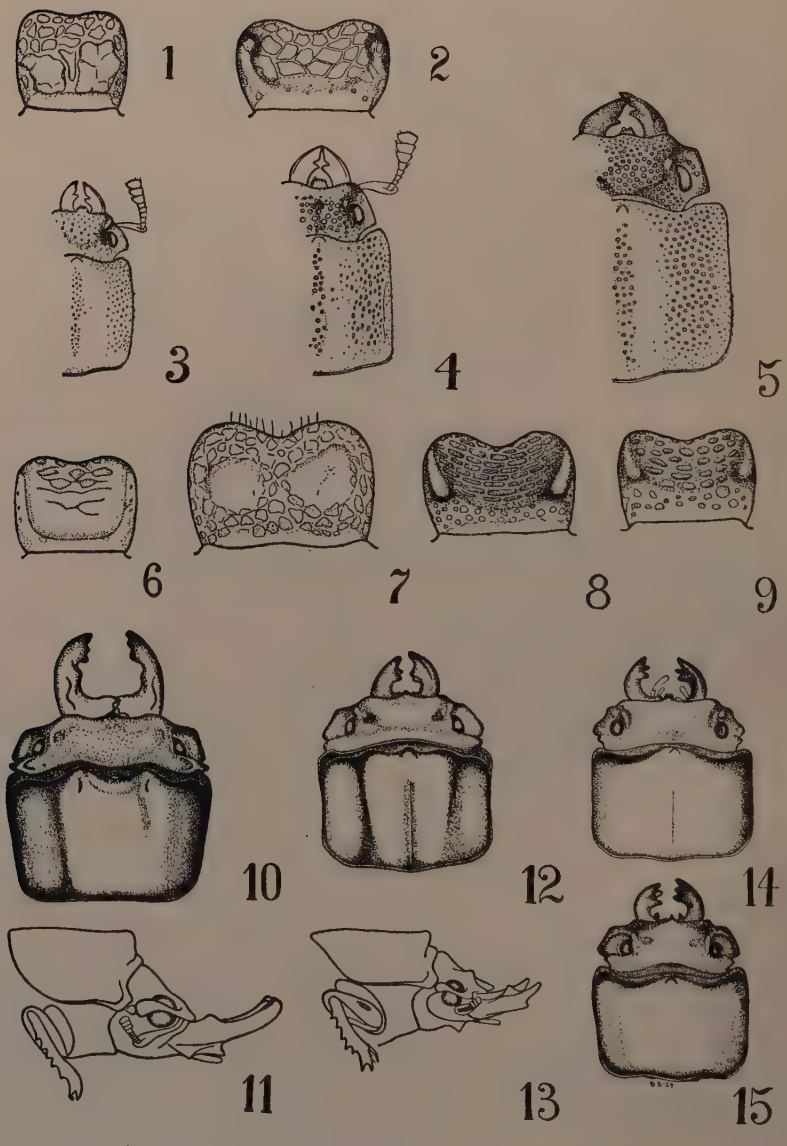
## EXPLANATION OF FIGURES

Fig. 1.—*Figulus seychellensis* Scott, mentum
Fig. 2.—*Figulus scotti*, n. sp., mentum
Fig. 3.—*Figulus seychellensis* Scott, head and pronotum
Fig. 4.—*Figulus scotti*, n. sp., head and pronotum
Fig. 5.—*Figulus vinsoni*, n. sp., head and pronotum
Fig. 6.—*Figulus approximatus*, n. sp., mentum
Fig. 7.—*Figulus vinsoni*, n. sp., mentum
Fig. 8.—*Figulus magnus*, n. sp., mentum
Fig. 9.—*Figulus striatus* (Oliv.), mentum
Figs. 1, 2, 6 and 7 double magnification of figs. 8 and 9
Fig. 10.—*Nagelius madagascariensis* (Cast.), ♂ dorsal aspect; fig. 11, ditto, lateral aspect
Fig. 12.—*N. madagascariensis* (Cast.) ♀ dorsal aspect; fig. 13, ditto, lateral aspect
Figs. 14 and 15.—*Nigidius oberndorferi* Nonfried (sex indeterminate)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# ON SOME RETICULATE-HEADED GENERA OF THE TRIBE GLYPTOTHRIPINI PRIESNER

## (Thysanoptera: Phlaeothripidae)

BY LEWIS J. STANNARD, JR.

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It has been customary in the past to place those genera of the Phlaeothripidae which have reticulate heads and bulged eyes in one group. As will be pointed out herein, such a classification is not a phylogenetical one. Reticulated heads, bulged eyes, and even many other characteristics, often reappear by parallel evolutionary development in several descent lines of no close relationships.

This report is part of a study of one phyletic line that contains some of these reticulate thrips, the tribe Glyptothripini. Many of the recently described South American representatives were not included because they are not available for study. The non-reticulate headed members of this tribe will be treated elsewhere at a later date.

Much of the critical information in this paper was obtained under the auspices of the John Simon Guggenheim Memorial Foundation. During the winter of 1954-1955 with a Fellowship from the Foundation, I studied type specimens at the British Museum (Natural History), London and at Professor Doctor Priesner's private collection in Cairo, Egypt. While visiting these places I consulted Dr. R. S. Bagnall, Mr. F. Laing, Professor Doctor H. Priesner, Mr. E. R. Speyer, and Dr. C. B. Williams. Their help and advice profited me greatly. To these thysanopterists, to the officers of their institutions, and to the John Simon Guggenheim Memorial Foundation, I express my fullest appreciation. I am indebted also to Mr. J. S. Ayars, Dr. K. K. Bohnsack, Dr. F. Bonet, Dr. H. B. Mills, Mr. T. E. Moore, Miss Kellie O'Neill, Dr. W. R. Richards, Dr. H. H. Ross, Dr. M. W. Sanderson and Dr. A. N. Tissot for specimens, information, and many other favors.

## Tribe GLYPTOTHRIPINI Priesner, 1927

How many or what genera this tribe includes has not been determined as yet. In my opinion it should be a natural group and include only those genera, which, while having other qualifications, are members of the subfamily Phlaeothripinae. The Phlaeothripinae, by my definition, have slender maxillary stylets, the males usually have the lateral, posterior pair of setae on abdominal tergite IX reduced and spine-like, and often the males have abdominal glandular areas. The other subfamily that I recognize, the Megathripinae, has thick, band-like maxillary stylets, the males never have the lateral, posterior pair of setae on abdominal tergite IX more reduced than is the case in the females, and the males never have abdominal glandular areas.

Therefore, since *Faureothrips* Priesner and *Dexiothrips* Hartwig belong to the subfamily Megathripinae, they should be removed from the tribe Glyptothripini.

So far I have limited Glyptothripini solely to members of the Phlaeothripinae which usually have the maxillary stylets placed fairly far apart within the head, usually have praepectal plates, usually have strong hexagonal reticulations on much of the body, often have the prothoracic anteromarginal setae reduced, never have accessory fringe cilia on the forewings, usually have broadly rounded, short mouth cones, and which usually have the cheeks sharply incut behind the eyes.

In Glyptothripini, I include the genera: *Terthrothrips* Karny, *Glyptothrips* Hood, *Eurythrips* Hinds, *Orthothrips* Priesner, *Chamaeothrips* Hood, *Sagenothrips* Priesner, *Pedocothrips* Hood, *Mystrothrips* Priesner, the two new genera described herein, and possibly *Porcothrips* Priesner. To this list might be added also, *Metriothrips* Hood and *Aesthetothrips* Hood.

I have excluded from Glyptothripini, *Malacothrips* Hinds, a genus of the Phlaeothripinae which, I believe, belongs in the tribe that contains *Hoplandrothrips* Hood. *Malacothrips*, although hexagonally reticulated and with cheeks that are incut behind the eyes, has the maxillary stylets placed fairly close together within the head, has accessory fringe cilia on the fore wings, lacks praepectal plates, has a pointed mouth cone, and the prothoracic anteromarginal setae are well developed. With so many characteristic

differences, I do not agree with Hartwig, 1952, that *Malacothrips* and *Eurythrips* are synonymous, and especially because of the possession of accessory wing cilia, that *Malacothrips* even belong to the same group as does *Eurythrips*.

The types of the seven new species described are deposited in the collection of the Illinois Natural History Survey.

## Key to Genera

1. Head not entirely covered dorsally by hexagonal reticulations .....2
   Head entirely covered dorsally by distinct hexagonal reticulations ....3
2. Antennae moderate in length .....**Eurythrips** Hinds
   Antennae especially long .....**Terthrothrips** Karny
3. Antennae each 7-segmented or with only a partial suture between morphological segments VII and VIII .....4
   Antennae each 8-segmented, every segment clearly separated from the others .....6
4. Tube long, strongly hexagonally reticulate except at apex
   **Chamaeothrips** Hood
   Tube short or moderate in length, not strongly hexagonally reticulate..5
5. Prothoracic anteromarginal setae minute .....**Glyptothrips** Hood
   Prothoracic anteromarginal setae well developed
   **Pedoeothrips** Hood
6. Prothoracic anteromarginal setae well developed
   **Mystrothrips** Priesner
   Prothoracic anteromarginal setae minute .....7
7. Tube strongly hexagonally reticulate except at apex
   **Eschatothrips** new genus
   Tube not strongly hexagonally reticulate .....8
8. Tube long, as long or about as long as head ....**Orthothrips** Priesner
   Tube moderate in length, much shorter than head .....9
9. Antennal segments III and IV with some dorsal setae that are dilated or blunt at tips. The North American species of
   **Erkosothrips,** new genus
   Antennal segments III and IV with all setae pointed at tips .....10
10. Postocular setae short, much shorter than the eye length
    **Sagenothrips** Priesner
    Postocular setae longer, about as long as the eye length
    **Porcothrips** Priesner

## CHAMAEOTHRIPS Hood

1954. *Chamaeothrips* Hood, Proc. Biol. Soc. Wash. 67: 44. Type species by original designation.—*Chamaeothrips jucundus* Hood.

*Diagnosis.*—Reticulate-headed member of the tribe Glyptothripini, with each antenna seven-segmented, with all the major prothoracic setae minute, and with a long hexagonally reticulate tube.

As Hood, 1954, mentions in his original description, this genus is essentially an *Orthothrips* with the antennae reduced. Like *Orthothrips bilineatus,* which has the last two antennal segments so closely joined that it is only a small evolutionary step away from the seven-segmented condition, the two species of *Chamaeothrips* have all of the major prothoracic setae reduced. The long hexagonally reticulate tube of *Chamaeothrips* is an easily recognized identification characteristic.

So far only macropterous forms are known.

## Key to Species

1. Last antennal segment (morphological segments VII and VIII) definitely longer by measurement than antennal segment V; from Brazil **jucundus** Hood

   Last antennal segment subequal or slightly shorter than antennal segment V; from Mexico ..... **decoratus** new species

**Chamaeothrips decoratus,** new species Fig. 9.

*Female* (macropterous).—Length, distended, exclusive of the antennae, about 3 mm. Color yellow with the sides of the head, sides of the thorax and base of the tube yellowish brown. Wings pale brown.

Head with cheeks deeply incut just behind eyes, with a conspicuous angular projection at this point; antennae seven-segmented, the morphological seventh and eighth segments completely fused (this last segment subequal or slightly shorter than antennal segment V); antennal segments III and IV with some dorsal setae which are dilated at the tips.

Prothoracic setae including epimeral setae minute; praepectus present but small; mesopraesternum fully developed, as in fig. 4, MPS; the three anterior basal setae of fore wings minute; fore tarsi, each with a minute tooth.

Pelta broad, rectangular; sigmoidal wing-holding setae not especially broadened but slightly so; slender tube much longer than the head length, heavily hexagonally reticulated except at apex, fig. 9.

*Holotype*: Female; Tlapacoyan, Veracruz, Mexico; May 24, 1945; (F. Bonet); presumably taken from ground litter.

**Chamaeothrips jucundus** Hood

1954. *Chamaeothrips jucundus* Hood, Proc. Biol. Soc. Wash. **67**: 44. ♀, ♂, macropterous.

*Type locality.*—Nova Teutonia, Santa Catarina, Brazil.

I have never seen this species. Both sexes, according to the original description, lack fore tarsal teeth. By contrast, *decoratus* has a minute tooth on each fore tarsus in the female sex at least.

## ERKOSOTHRIPS, new genus

*Diagnosis.*—Reticulate-headed member of the tribe Glyptothripini with normal sized tube which is not hexagonally reticulate, with eight clearly separated antennal segments which are not exceptionally slender, with epimeral sutures often incomplete, and with prothoracic anteromarginal setae minute.

I am erecting this genus principally for those reticulate-headed species that previously have been placed in *Eurythrips*. I delayed this separation until now because of Hood's statement (1936, p. 9): "Furthermore, in the series of *Eurythrips* before me, a complete transition is observable in sculpture from those species which are nearly glabrous above to such species as the present one [*Eurythrips sculpturus*], in which the dorsal anastomosing lines take on a polygonal disposition and become pronouncedly elevated. Differences in sculpture which are of degree rather than of kind are seemingly never of generic, and certainly never of tribal, value in the Thysanoptera."

Since reading the above in 1947, I have searched in vain, for transitional species that would be so intermediate as to prevent a division between the entirely reticulate-headed "*Eurythrips*" and those which at most are only partially reticulate. Unless I have overlooked species, the division between these two groups with differently sculptured heads is easily made and without the possibility of confusion.

Almost certainly in this group of the Thysanoptera, sculpture is of generic value. If desirable any kind of characteristic, no matter how trivial, can be of generic or tribal value whenever these characteristics can be positively recognized and be used to differentiate two or more species. Genera or any other taxon higher than the species level are a matter of opinion and not of biological significance except historically; and from the historical viewpoint there can be several correct opinions (Williams, 1951).

Because of the close morphological similarity between the Sumatran genus *Sagenothrips* and *Erkosothrips,* it is possible that *Erkosothrips* is the New World biological equivalent of *Sagenothrips*. These two genera can be separated by several features. *Sagenothrips* has every antennal setae pointed at the tip and the mid setae on the posterior of abdominal tergite IX are pointed at

the tips. By contrast *Erkosothrips* has several antennal setae which are distinctly dilated at the tips, especially on segments III and IV, and always the mid setae on the posterior of abdominal tergite IX are knobbed.

*Porcothrips* Priesner differs from *Erkosothrips* by having very slender antennae and in having all antennal setae pointed at the tips.

### Diagnostic Characteristics

*Head.*—Longer than wide, entirely covered by hexagonal reticulations, incut behind the eyes; post ocular setae short to very short, never longer than the length of the eye; each antenna eight-segmented, not exceptionally slender, segment VIII pedicelate, segments III and IV with several knobbed setae; sense cones slender but not as long proportionately as in *Eschatothrips*.

*Mouth parts.*—Mouth cones short, broadly rounded; maxillary stylets slender, placed far apart within head.

*Thorax.*—Prothorax longer than in *Eschatothrips* or in *Orthothrips*; most major prothoracic setae well developed except anteromarginal setae which are minute; epimeral sutures sometimes complete but more often incomplete; praepectus present; mesopraesternum well developed except slightly reduced in some apterous individuals; macropterous, brachypterous, or apterous, never micropterous as far as is known; fore wings when present without accessory fringe cilia.

*Abdomen.*—Dorsal surface with hexagonal reticulations; pelta elongate oval to rectangular; tube moderate in size, at most with only weak reticulations at base; mid posterior pair of setae on tergite IX as long as ½ the length of the tube, knobbed; males with glandular area broad and band-like or a narrow subbasal band on sternite VIII; males with lateral posterior pair of setae on tergite IX shortened and often spine-like.

*Type species.—Erkosothrips interior,* new species.

Assignable to this genus, besides the type species, are: *claviger* (Hood), *floridensis* new species, ? *reticulatus* (Watson), *sculpturus* (Hood), and *silvarum* (Hood). All of these are from North America. Those previously named species are herewith transferred from *Eurythrips*.

Some other species from South America, now placed in *Orthothrips,* also might belong in *Erkosothrips*. None of these Neotropical species is available to me for study and I hesitate to reassign any of them at present. On the other hand, the preceding key to the genera would include some of them, especially such species as *Orthothrips hylaeus* (Hood) which was originally de-

scribed in *Sagenothrips*. For this reason the couplets leading to *Erkosothrips* may not be applicable to the South American fauna.

### Key to North American Species, except *reticulatus* (Watson)

1. Pterothorax with ventrolateral knobbed setae, fig. 8; always lateral pelta setae placed outside pelta, fig. 8 ..... 2
   Pterothorax without knobbed ventrolateral setae; lateral pelta setae placed outside or inside pelta ..... 4
2. Abdomen yellow except for brown median spots; lateral pelta setae well developed; terminal antennal segments yellowish brown **interior**, new species
   Abdomen dark brown; lateral pelta setae minute; terminal segments of antenna dark brown ..... 3
3. Antennal segment III yellowish; head short, checks much swollen, fig. 2; post ocular setae placed in line with the lateral margin of each eye; males with a thin subbasal glandular area on abdominal sternite VIII **floridensis**, new species
   Antennal segment III brown; head longer; post ocular setae placed on a line well inside the lateral margin of each eye; males with a broad band-like glandular area occupying most of abdominal sternite VIII **claviger** (Hood)
4. Cheeks not especially swollen; post ocular setae placed on a line well inside the lateral margin of each eye; epimeral sutures often complete **sculpturus** (Hood)
   Cheeks definitely swollen, as in fig. 2; post ocular setae placed in line with the lateral margin of each eye; epimeral sutures never complete **silvarum** (Hood)

**Erkosothrips claviger** (Hood), new combination

1941. *Eurythrips claviger* Hood, Revista de Entomol. 12(1-2): 166. ♀, ♂, brachypterous.

*Type locality.*—Oswegatchie, New York.

This is a darkly colored species inhabiting dead grasses. It is the only species known which has the posterior reticulations of the metanotum reduced to wart-like spots, although this condition may be a population characteristic rather than a feature of the species as a whole.

Unlike any other species in the genus, the males of this species have a broad band-like glandular area which occupies most of abdominal sternum VIII. Males of the other species have this glandular area in the form of a thin subbasal band.

Before me are nine specimens, including both sexes, from Michigan, collected by Dr. K. K. Bohnsack in August 1950. Quite possibly this is a northern species. I have searched for it often in more southern localities but so far without success.

**Erkosothrips floridensis,** new species Fig. 2

This species is the third in the genus which has knobbed, prominent, ventrolateral pterothoracic setae. From the other two species with similar setae, *floridensis* may be distinguished by the dark brown abdomen in combination with the characteristically yellow third antennal segment. Its head is shaped more like that of *silvarum,* a species which lacks knobbed ventrolateral prothoracic setae.

*Male* (brachypterous).—Length distended, exclusive of the antennae, about 1.2 mm. General color brown. Legs, middle of head, antennal segment III, and most of the pelta yellow.

Head, fig. 2, shaped much as in *silvarum,* short with conspicuously swollen cheeks; post ocular setae placed in line with the lateral margin of the eyes.

Pterothorax with at least the posterior pair of ventrolateral setae knobbed.

Lateral pelta setae minute, placed outside of pelta; glandular area of abdominal sternum VIII in the form of a thin subbasal band.

*Female.*—Unknown.

*Holotype*: Male; Everglades Nat. Park, Florida (Long Pine Key Hammock); Dec. 24, 1951; (Richards and Stannard); from forest leaf mold. *Paratype*: 1 ♂, same data as for holotype.

**Erkosothrips interior,** new species Fig. 8.

This is the lightest colored species of the genus so far discovered. It is predominantly yellow with some brown spots. Sometimes teneral specimens of *E. sculpturus* may approach *interior* in color but these two species can be separated easily by the structural and antennal color differences mentioned in the preceding key.

To date *interior* has been taken only in the Midwest, particularly in Illinois. Besides the series from Illinois, a specimen is before me from lower Michigan not far from Illinois. Always this species has been collected from forest ground cover and never from grasslands, never even from grasses a short distance from woodlands.

Macropterous and apterous specimens are unknown.

*Female* (brachypterous).—Length completely distended, exclusive of the antennae, about 2 mm. General color deep yellow, terminal segments of the antennae shading into yellowish brown but never dark brown. Brown: wing pads, usually, median anterior dorsal spot on abdominal tergites III to VIII, and tube except extreme base.

Head, entirely covered by strong hexagonal reticulations; cheeks not exceptionally swollen; occipital setae strongly developed, as long as, and sometimes longer than, the post ocular setae; ocelli present but reduced; antennal segment VIII with a narrow pedicel.

Pterothorax with two pairs of ventrolateral knobbed setae similar to those found in *claviger*, but not as long, fig. 8.

Lateral pelta setae well developed, knobbed, placed outside pelta, fig. 8.

*Male* (brachypterous).—Length, distended, exclusive of the antennae, about 1.5 mm. Similar in most details to female. Glandular area of abdominal sternum VIII, a thin narrow subbasal band.

*Holotype*: Female; Monticello, Ill., Allerton Estate; April 14, 1942; (M. O. Farrar); woodland debris. *Allotype*: male; same data as for holotype except November 16, 1937. *Paratypes*: 11 ♀, 7 ♂ same data as for holotype except for the following dates: November 16, 1937, September 28, 1938, April 5, 1940. 2 ♀; Arcola, Ill.; October 12, 1949; (L. J. Stannard); woodland debris. 3 ♀, 1 ♂ Dolson, Clark Co., Ill.; May 13, 1949; (Ross, Gloyd, and Stannard); woodland debris. 1 ♂; Westport, Ill.; September 15, 1949; (Ross and Stannard); forest debris. 1 ♀; Three Oaks, Berrien Co., Mich.; October 14, 1951; (T. E. Moore); forest debris.

Only *claviger, floridensis,* and *interior* bear knobbed ventrolateral pterothoracic setae. The species *claviger* and *floridensis* are generally dark brown; *interior* is almost entirely yellow.

**Erkosothrips (?) reticulatus** (Watson), new combination

1934. *Glyptothrips reticulatus* Watson, The Fla. Entomologist 18(3): 45. ♀, ♂, apterous.

1937. *Eurythrips reticulatus* (Watson), Watson, The Fla. Entomologist 20 (2): 21. New combination.

*Type locality.*—Not given but either Alabama, Florida, North Carolina, or Virginia.

The association of this name with a species has not been made satisfactorily in the literature nor in my own mind. The type

series of over 100 specimens consists of at least two species including a true *Erkosothrips* and *Eschatothrips barythripoides*. Hood, 1941, p. 163 stated that the holotype of *reticulatus* had been forwarded to him for study by Watson, but Professor Tissot, who is in charge of the Watson collection, was unable to find any specimen designated as holotype in February 1955.

In view of the fact that Hood had examined the holotype of *reticulatus* before describing the species *silvarum* as new, it is obvious that he considered the two species distinct. However, Watson's description of *reticulatus* and three paratypes of this species which are before me, generously lent by Professor Tissot, indicate that *reticulatus* and *silvarum* may be extremely close if not the same species. Both, according to the literature, have swollen cheeks, are apterous, and live in the same habitat (fallen leaves, especially pine needles).

Nevertheless, Hood, 1941, in describing *silvarum* stated that *silvarum* had more swollen cheeks than *reticulatus* and *sculpturus*. Hood did not mention *sculpturus* by name; rather he referred to his figure of *sculpturus* given in 1936, a species which was described before it was known that *reticulatus* was also a congener. Thus by Hood's implication in 1941, *reticulatus* would be more nearly like *sculpturus* than *silvarum*. Since this concept could not be derived from Watson's original description nor from the paratypes of *reticulatus* that I have seen, it is even possible that the holotype of *reticulatus* represents either still another species or possibly another name for *sculpturus*.

Until the type of *reticulatus* can be found and reported upon, the name must remain a *nomen inquirendum*.

**Erkosothrips sculpturus** (Hood), new combination

1936. *Eurythrips sculpturus* Hood, Psyche **43**: 5. ♀, ♂, brachypterous.

*Type locality*.—Tallulah, Louisiana.

This species, *sculpturus*, is the southern grassland member of *Erkosothrips*, whose place is taken in the north by *claviger*. Apparently *sculpturus* ranges from Louisiana to Long Island, N. Y. along the east coast and to central Illinois up the Mississippi Valley (INHS records). Whenever exact data are given, the habitat of this species has always been stated by collectors to be crowns

of grass clumps or grass humus. I have taken it several times from *Andropogon* sod in Illinois and Tennessee.

Most specimens are brachypterous but in the collections of the Illinois Natural History Survey there is a macropterous female from Harmony, N. C.

*E. sculpturus* can be distinguished by the characteristics given in the preceding key. The epimeral sutures of the prothorax are more complete than in any other species in the genus; in fact, these sutures are often complete.

**Erkosothrips silvarum** (Hood), new combination

1941. *Eurythrips silvarum* Hood, Revista de Entomol. 12(1-2): 163. ♀, ♂, apterous.

*Type locality.*—Enfield Glen State Park, Tompkins Co., New York.

Both this species and *floridensis* have especially shortened heads and prominently swollen cheeks. Also unlike their congeners, the post-ocular setae of these two species are placed more laterally on the cheeks, that is, in line with the lateral margins of the eyes rather than more medially on the head.

*E. silvarum* can be easily distinguished from the similarly formed *floridensis* by several features. The ventrolateral pterothoracic setae are not knobbed in *silvarum* whereas these setae are knobbed in *floridensis;* and antennal segment III is predominantly brown in *silvarum* whereas in *floridensis* this segment is yellow.

All known individuals of *silvarum* are apterous. Their degree of apterousness is slight, that is, the usual accompanying degeneracy of other characteristics has not set in to any great extent. Most specimens still retain at least vestiges of ocelli and the mesothorax is only slightly modified from that found in brachypterous forms of other related species. Apparently apterism is an evolutionary trait new to *Erkosothrips* and was initiated in the species *silvarum.* Watson's species *reticulatus,* unknown to me, also is supposed to be apterous.

Before me are specimens from Pennsylvania, Massachusetts, and Connecticut. In addition there are in the collections of the Illinois Natural History Survey two females from northern Arkansas and one male from the Great Smoky Mountains National

Park, Tennessee which exhibit slight variation from what I consider to be the typical form. These southern individuals appear to be identical with paratypes of *reticulatus* (Watson) from Florida.

## ESCHATOTHRIPS new genus

*Diagnosis.*—Reticulate-headed member of the tribe Glyptothripini with a moderately developed tube which is hexagonally reticulate except at apex, with eight clearly separated segments in each antenna, and with prothoracic anteromarginal setae minute.

Phylogenetically this genus stands between *Erkosothrips* and *Glyptothrips,* but probably closest to the latter.

The sole species of *Glyptothrips* and the several species of *Eschatothrips* usually have a pair of light median abdominal stripes, have the fore wings slightly outcurved, and have a short prothorax. *Glyptothrips* also shows evidence of weak reticulations at the base of the tube suggestive of the more definite and extensive conditions found in *Eschatothrips.*

By contrast, *Erkosothrips* has the major posterior, lateral setae of abdominal tergite VIII placed farther apart from each other than is the case in either *Glyptothrips* or *Eschatothrips;* often the tube is more slender; and the prothorax is slightly longer.

*Glyptothrips* could be considered to be a more specialized derivative, by degeneration, from an ancestor common to it and to *Eschatothrips,* as indicated by the partial to complete fusion of morphological antennal segment VII and VIII.

### Diagnostic Characteristics

*Head.*—Longer than wide, entirely covered by hexagonal reticulations, incut behind eyes; post ocular setae short, shorter than length of eye; each antenna eight-segmented, segment VIII pediculate or nearly so, segments III and IV with several knobbed setae, sense cones somewhat elongate.

*Mouth parts.*—Mouth cones short, broadly rounded; maxillary stylets slender, placed far apart within the head.

*Thorax.*—Prothorax short; most major prothoracic setae well developed, except anteromarginal setae which are minute; epimeral sutures complete; praepectus present; mesopraesternum well developed; either macropterous or micropterous, brachypterous individuals unknown at present; fore wings slightly upturned, without accessory fringe cilia; in micropterous specimens the short wings are extended barely beyond abdominal somites I or II.

*Abdomen.*—Surface covered by hexagonal reticulations; pelta rectangular; tube moderate in size, somewhat stout, covered, except at apex, by distinct

hexagonal reticulations and ridges, fig. 7; mid pair of posterior setae of tergite IX less than ½ length of X, dilated at tips. Males with a broad band-like glandular area on abdominal sternum VIII and the lateral pair of dorsal posterior setae of segment VIII is each shortened and spine-like.

*Type species.—Eurythrips reticulotubus* Stannard.

## Key to Species

1. Femora yellow ..... 2
   Femora, except knees, dark brown ..... 3
2. Head at sides, thorax, and at least abdominal somites I and II brownish; from Venezuela ..... **whitcombi** new species
   All of head, thorax, and abdominal somites I and II yellow; from northeastern United States ..... **barythripoides** (Watson)
3. Fore tibiae mostly yellow; antennal segment II brown; occipital setae about as well developed and as long as the post ocular setae; from Brazil ..... **variegatus** (Hood)
   Fore tibiae mostly dark brown; antennal segment II yellow; no head setae nearly as well developed or as long as the post ocular setae; from Jamaica ..... **reticulotubus** (Stannard)

**Eschatothrips barythripoides** (Watson), new combination

1935. *Glyptothrips barythripoides* Watson, The Fla. Entomologist 18(4): 55. ♂, ♀, stated to be apterous. Type locality.—Not given, but possibly northern Florida.
1953. *Eurythrips barythripoides* (Watson), Stannard, Occ. Pap. Mus. Inst. Jamaica, no. 6: 3. New combination.

Although I have never seen the holotype, Watson's original description is sufficiently clear, despite omissions and what may be errors, to permit the determination of this fairly common insect of the southeastern United States.

*E. barythripoides* is the yellowest species of the genus so far discovered. Also, it is the only one which is not confined to the tropics. Like its congeners, it lives in the forest leaf mold.

Watson, 1935, emphasized the rather thick tube of this species as a diagnostic characteristic. He did not mention, however, the hexagonal reticulations of the tube which are so distinctive of this genus. Possibly in error, Watson stated that the type specimens were "aparous," presumably meaning apterous. Of the 30 specimens before me from four states all are either micropterous or macropterous. These micropterous individuals have short,

nearly colorless wings which could be overlooked, possibly, and thus a conclusion might be reached that they were apterous.

In color, this species is yellow except for the terminal antennal segments, a median anterior blotch on abdominal somites III-VII and sometimes VIII in Florida specimens, and the tips of the tube, which are brown; remainder of the tube orange. *E. barythripoides* has an extremely narrowed pedicel on antennal segment VIII and the glandular area of abdominal sternite VIII in the male is often constricted in the middle.

**Eschatothrips reticulotubus** (Stannard), new combination Figs. 5 and 7.

1953. *Eurythrips reticulotubus* Stannard, Occ. Pap. Mus. Inst. Jamaica, no. 6: 2. ♀, ♂, micropterous.

*Type locality.*—Lluidas Vale, Jamaica.

Since this species was described, ten more specimens have turned up; three of these are macropterous females. All are from Jamaica as was the type series.

*E. reticulotubus* is the darkest colored species in the genus. The short wings of the micropterous individual are generally slightly longer in relation to the insect than the wings of micropterous specimens of *barythripoides.*

**Eschatothrips variegatus** (Hood), new combination

1954. *Orthothrips variegatus* Hood, Proc. Biol. Soc. Wash. **67**: 41. ♂, macropterous.

*Type locality.*—Belém, Pará, Brazil.

I have never seen the unique type of this species but almost certainly it belongs here. It has an unusual feature, the strong development of the occipital setae, which sets it apart from the rest of the species. According to Hood the male type is macropterous, which also is an unusual condition not yet found in the other species. All males known of the other species are micropterous.

**Eschatothrips whitcombi,** new species.

*Male* (micropterous).—Length distended, exclusive of the antennae, about 1.3 mm. General color yellowish brown. Yellow: central portion of head, legs, and pedicels of antennal segments III, IV, and V. Orange yellow: abdominal somites V-X, except tip of X (tube). Dark brown: apical segments of antennae and tip of tube.

Head typical for genus; post ocular setae minute; pedicel of antennal segment VIII little narrowed; short fore wings extended to the anterior margin of abdominal segment IV. Glandular area of venter of abdominal somite VIII forming a broad band which is not indented in the middle.

*Holotype:* Male; Rancho Grande near Maracay, Venezuela; March 1953; (Dr. W. H. Whitcomb); from fallen leaves.

This species can be distinguished by its color and by the exceptionally small post ocular setae which are hardly discernible.

It is named for Dr. Willard H. Whitcomb, a thysanopterist, who recently has discovered many unusual species of thrips in Venezuela.

## GLYPTOTHRIPS Hood

1912. *Glyptothrips* Hood, Psyche **19**: 116. Type species by original designation.—*Glyptothrips flavescens* Hood.

1912. *Pactothrips* Hood. *Ibid.*, p. 116. Misstatement for *Glyptothrips*.

*Diagnosis.*—Reticulate-headed member of the tribe Glyptothripini, with each antenna seven-segmented (at most with a partial suture between morphological segments VII and VIII), with a non-reticulate, moderately sized tube, and with the prothoracic anteromarginal setae minute, or lacking.

Although nearly half a dozen species have been assigned to this genus from time to time, most of these species have since been transferred elsewhere. Once again the type species is the sole representative of *Glyptothrips* in North America and perhaps in the world, depending on the true status of *perniger* Girault of Australia and a possible new form in Illinois.

### Glyptothrips flavescens Hood

1912. *Glyptothrips flavescens* Hood, Psyche **19**: 116. ♀, macropterous.

*Type locality.*—Grand Tower, Illinois.

I have never seen the holotype but I have examined over 50 specimens from Illinois and Kentucky.

At the moment, I consider the specimens that I have seen as representing but one species. In Illinois the macropterous and micropterous individuals have many structural differences from the apterous individuals. Even though these differences are big differences, both forms are found in the same area, in the same habitat, and at the same time of year, which is a good indication that they are but one species.

On the other hand Hood in his original description stated that the macropterous form had darkly colored antennal segments and that antennal segments VII and VIII were completely fused, and his accompanying figure showed that the anterolateral setae of the prothorax were displaced medially. I have found that these three characteristics are shown only in the apterous forms available to me. Thus *flavescens* may stand for one species, and the macropterous and micropterous forms before me may be an undescribed species. However, I am not convinced that two species are involved and, until the holotype can be seen, I prefer to shelve the problem except to note the differences that have come to my attention.

Apterous Illinois specimens have: 1) morphological antennal segments VII and VIII completely fused without a trace of a partial suture; 2) terminal antennal segments dark brown; 3) post ocular setae shorter; 4) mesopraesternum degenerate; 5) anterolateral setae of the prothorax displaced slightly towards the meson; 6) pelta rectangular or elongate oval in shape.

Macropterous and micropterous Illinois specimens, Hood's holotype not considered, have: 1) a partial suture between morphological segments VII and VIII; 2) the terminal antennal segments are more yellowish; 3) post ocular setae longer; 4) mesopraesternum well developed; 5) anterolateral setae not particularly displaced towards the meson; 6) pelta reduced, derby shaped.

Males are always either apterous or micropterous, that is, the wing pads sometimes extend nearly to abdominal segment II. Their glandular area on abdominal sternite VIII is in the form of a thin band across the middle of the segment.

### MYSTROTHRIPS Priesner

1949. *Mystrothrips* Priesner, Bul. Soc. Fouad 1er Entom. **33**: 117. Type species by original designation.—*Sagenothrips dammermani* Priesner.

*Diagnosis.*—Reticulate-headed member of the tribe Glyptothripini with anteromarginal setae well developed, with each antenna eight-segmented, and with moderately sized tube without strong hexagonal reticulations.

This genus was originally based on the species *dammermani* (Priesner) from the same faunal region (Sumatra-Java) as the closely related *Sagenothrips*. Since then, in 1954, Hood added the South American species, *clavatoris* Hood.

I have seen and compared the holotype of *dammermani* with a macropterous Borneo specimen which is now before me on loan from the Chicago Natural History Museum. The species *clavatoris* is unknown to me, and therefore, I am unable to express an opinion on the advisability of including it in *Mystrothrips*.

### Key to Species

1. Abdomen and tube generally yellow; antennal segments III and IV with all setae pointed at the tips; from Java and Borneo, fig. 1 **dammermani** (Priesner)

   Abdomen darkened medially in segments III to VIII, tube generally dark brown; antennal segments III and IV with most setae knobbed; from Brazil ..... **clavatoris** Hood

**Mystrothrips clavatoris** Hood

1954. *Mystrothrips clavatoris* Hood, Proc. Biol. Soc. Wash. **67**: 32. ♀, ♂, brachypterous.

*Type locality.*—Nova Teutonia, Santa Catarina, Brazil.

Hood records a number of features of *clavatoris* in his description that differ from those found in *dammermani*. Besides color, *clavatoris* differs, for example, in having one outer sense cone on antennal segment III (instead of two outer sense cones); by having knobbed setae on antennal segments III and IV; and by having most of the leg setae knobbed.

For the moment, I shall follow Hood and consider *clavatoris* as possibly congeneric with *dammermani*. However, the two species should be critically compared in the future, if for nothing more than to redefine the genus.

**Mystrothrips dammermani** (Priesner) Fig. 1.

1933. *Sagenothrips dammermani* Priesner, Konowia **12**(1-2): 75. ♀, brachypterous. Type locality.—Buitenzorg, Java.

1949. *Mystrothrips dammermani* (Priesner), Priesner, Bul. Soc. Fouad 1er Entom. **33**: 117. New combination.

The following specimen represents a new locality record: 1 female (macropterous); North Borneo, Kinabatangan District, S. E. end of Dewhurst Bay; June 16, 1950; (R. F. Inger and D. D. Davis); from primary forest.

According to my notes on the type of *dammermani* or as seen in the Borneo specimen which I believe to be conspecific with *dammermani,* antennal segment III, like *Sagenothrips,* possesses only pointed setae; the praepectal plates are present but somewhat weak; the mesopraesternum is well developed; no ventrolateral pterothoracic setae are knobbed; the leg setae are all pointed at the tips; the forewings lack accessory fringe cilia; none of the wing-holding setae is enlarged or flattened; and unlike *Sagenothrips* the major posterior pairs of setae on abdominal tergite IX are dilated at the tips. Its principal key characteristic is the presence of well-developed prothoracic anteromarginal setae.

### ORTHOTHRIPS Priesner

1925. *Orthothrips* Priesner, Deutsch. Ent. Zeitschr., p. 23. Type species by original designation.—*Orthothrips caudatus* Priesner.

*Diagnosis.*—Reticulate-headed member of the tribe Glyptothripini with each antennae eight-segmented; with a short prothorax which always has the epimeral sutures complete, with prothoracic anteromarginal setae minute, with the mid pair of posterior setae of abdominal tergite IX small, and with long, non-hexagonally reticulate tubes.

With the addition of the three new species described herein, the distribution of the genus is extended into Central America and the number of species assigned to *Orthothrips* is increased to about one dozen. It is my belief that several of the South American species belong elsewhere but even if these were excluded, *Orthothrips* still would stand for a heterogenous group of thrips. Even the three new Central American species exhibit considerable individualism by their peculiar characteristics.

I have seen the type species, *O. caudatus.* In my opinion, the three new species described in the following paragraphs seem close enough to the Surinam *caudatus* to be included in *Orthothrips.*

Because many of the South American species are unknown to me, the diagnoses and the key given here are limited, for the most part, to those species of my own description which are from Central America.

## Diagnostic Characteristics

*Head.*—Longer than wide, entirely covered by hexagonal reticulations, cheek incut behind the eyes; post ocular setae very short; each antenna eight-segmented, not exceptionally slender, segment VIII with a moderately narrow pedicel to no distinct pedicel; segments III and IV with several setae which are blunt or dilated at the tips; sense cones unusually long and slender.

*Mouth parts.*—Mouth cones short, broadly rounded; maxillary stylets slender, placed fairly far apart within head.

*Thorax.*—Prothorax short; most major prothoracic setae not greatly developed, anteromarginal setae minute; epimeral sutures always complete; praepectus present or absent; probasisternum sometimes fused into one plate; mesopraesternum well developed to greatly reduced; macropterous, micropterous, or apterous; fore wings when present without accessory fringe cilia.

*Abdomen.*—Dorsal surface with hexagonal reticulations; pelta elongate oval to trapezoidal to "derby" shaped; occasionally wing-holding setae somewhat expanded; tube long, longer than head in female, just slightly shorter than head in male, never hexagonally reticulate but sometimes with ridges at base of tube; mid pair of posterior setae of abdominal tergite IX short, much shorter than ½ length of tube. Males with glandular area of abdominal sternite VIII band like, occupying nearly whole segment to a thin line extending across the middle.

## Key to Central American Species

1. Probasisternal plates (BS) fused, fig. 6 .....**bilineatus,** new species
   Probasisternal plates (BS) separate, fig. 4 .....2
2. Praepectus present, fig. 4; tube smooth .....**boneti,** new species
   Praepectus absent; tube ridged at base .....**dubius,** new species

Several interesting tendencies are shown in the Central American species. One, the tendency towards the reduction of the antennae to the seven-segmented type found in *Chamaeothrips* and *Glyptothrips* is indicated in *O. bilineatus.* Antennal segments VII and VIII in *bilineatus* are extremely closely joined, and although a complete suture is present to divide the two segments, only a small amount of change would be necessary to arrive at the condition found in macropterous individuals of *Glyptothrips* in which only a partial suture exists, or to apterous individuals of *Glyptothrips* or species of *Chamaeothrips* in which the suture disappears completely.

Another tendency is for the macropterous species to possess smaller peltae. Both the winged form of *dubius* and *caudatus*

have the pelta reduced from the rectangular type found in *boneti* and *bilineatus*. Such similar reductions of the pelta occur in the winged form of *Glyptothrips,* but not, however, in *Chamaeothrips decoratus*.

Still another tendency is for the wing-holding setae to become dilated. The winged *dubius* has these setae dilated to the greatest degree. Even *Ch. decoratus* has a slight tendency to have the wing-holding setae dilated, but such is not the case in *Glyptothrips*. *Neurothrips,* a member of another tribe, also has similar dilated wing-holding setae, and thus, apparently, this trend can crop out independently in the Phlaeothripinae and does not necessarily indicate close relationships.

Both *caudatus* and *boneti* have broad band-like glandular areas on abdominal sternite VIII in the males. These glandular areas are formed similar to some of those found in *Erkosothrips* and *Eschatothrips*. On the other hand the male of *O. bilineatus* has a glandular area which is thin and placed across the middle of abdominal sternite VIII which approaches more the type found in *Glyptothrips*.

**Orthothrips bilineatus,** new species Figs. 3 and 6.

*Female* (apterous?).—Length, distended, exclusive of the antennae, about 1.5 mm. General color yellow. Brown: sides of the head, all of the prothorax, sides of mesothorax, sides of abdominal segments II to V, antennal segments V to VIII, and fore coxae. Tip of tube grey. Dark red subintegumental pigments underlying all of the brown areas of the body and extending along the sides of the abdomen into segments VI, VII, and VIII.

Head, fig. 3; ocelli rudimentary; antennae eight-segmented, segment VIII without trace of pedicel, closely joined to segment VII.

Prothorax short; major prothoracic setae, including epimeral setae, small, almost minute; praepectus present, fig. 6 (PP); probasisternal plates fused, fig. 6 (BS); mesopraesternum degenerate, fig. 6 (MPS); fore tarsal tooth conspicuous, located basad of the unquitractor; wing pads apparently not present.

Abdomen without specialized wing-holding setae; pelta broad, rectangular; tube slightly longer than head, smooth, without ridges or reticulations.

*Male* (apterous?)—Length, distended, exclusive of the antennae, about 1.3 mm. Similar to female. Glandular area of abdominal sternum VIII as a thin transverse line across the middle; tube slightly shorter than the head length.

*Holotype:* Female; Hardwar Gap, Portland Parish, Jamaica; May 9, 1950; (H. B. Mills); from ground cover of the moss-like fern, *Selaginella,* etc. *Allotype:* Male, same data as for holotype. *Paratypes:* 1 ♂; same data as for holotype; 1 ♀ same data as for holotype except from mossy forest, particularly epiphitic mosses and ferns picked from trunks of trees.

This distinctive species can be recognized from all other Tubulifera by the fused probasisternal plates, an unique condition in the Thysanoptera.

**Orthothrips boneti,** new species Fig. 4.

*Female* (micropterous).—Length, distended, exclusive of the antennae, about 2 mm. General color brownish with much red subintegumental pigments. More yellowish than brown: antennal segments I to III, head except sides, median area of pterothorax, apical segments of the legs, pelta, two submedial lines along the terga from abdominal segments II to VIII, and most of abdominal segment IX. Abdominal segment X (the tube) and the apical segments of the antennae strongly brown.

Head somewhat as in fig. 3, except ocelli well developed between the eyes; antennae each eight-segmented, segment VIII with hardly any pedicel, fairly broadly attached to segment VII.

Prothorax similar to fig. 3, except anterolateral and epimeral setae longer; prosternum, fig. 4, with praepectus (PP) present, probasisternum (BS) as two separate plates and mesopraesternum (MPS) fully developed; fore tarsal tooth small, placed against the base of the unquitractor; wings larger than just pads but not as long as in micropterous specimens of *Eschatothrips.*

Abdomen with two pairs of sigmoidal wing-holding setae on segments III to VII, these setae not especially broadened, but slightly so; pelta broad, oval; slender tube definitely longer than the head, smooth, not ridged, nor strongly reticulate.

*Male* (brachypterous-micropterous).—Length, distended, exclusive of the antennae, about 1.5 mm. Similar to female. Glandular area on abdominal sternum VIII as a broad rectangular, transverse band. Tube as long as or just slightly shorter than the length of the head.

*Holotype:* Female; Tlapacoyan, Veracruz, Mexico; April 18, 1946; (F. Bonet); presumably taken from ground litter. *Allotype:* Male; same data as for holotype. *Paratype:* 1 ♂, a teneral specimen; same data as for holotype.

From the closely related *dubius, boneti* differs mainly in having praepectal plates. A comparison of the two species is given in the discussion following the description of *dubius* and in the accompanying key.

**Orthothrips dubius,** new species

*Female* (macropterous).—Length, distended, exclusive of the antennae, about 2 mm. General color brownish yellow with much red subintegumental pigment. Color pattern as in *boneti* except median spot on several of the abdominal terga not as pronounced. Wings light brown.

Head similar to *boneti*, except eyes larger; antennae each eight-segmented, segment VIII with a small but definite pedicel.

Prothorax similar in shape to *boneti* and *bilineatus*, only epimeral setae well developed; praepectus absent, otherwise prosternum as in fig. 4; mesopraesternum fully developed.

Abdomen with posterior pair of wing-holding setae broadened on segments III to VIII; pelta small, bell-shaped; tube ridged at base, distinctly longer than the head, not reticulate.

*Holotype:* Female; Tlapacoyan, Veracruz, Mexico; May 24, 1945; (F. Bonet); presumably taken from ground litter.

Because of the many morphological similarities of this species with *boneti* and because both occur in the same locality, although the time of their occurrence may not be identical, it is possible that the two are but representatives of the same species. One, *boneti,* may be the brachypterous-micropterous form; the other, *dubius,* may be the macropterous form. Even so, such a conclusion is but a presumption and until more data are available I choose to regard *dubius* as a distinct species.

In addition to being fully winged, *dubius* differs from *boneti,* in that in *dubius* the praepectal plates are absent; the wing-holding setae are decidedly broadened; the tube is ridged at the base; the pedicel of antennal segment VIII is more narrowed; and the pedicels of the intermediate antennal segments are longer. Larger eyes and a reduced pelta, as found in *dubius,* may be the usual condition of macropterous forms of this genus. If *dubius* and *boneti* are the same species, that species certainly has a wide range of variation in certain structures.

## PORCOTHRIPS Priesner

1951. *Porcothrips* Priesner, Ann. Mag. Nat. Hist., Ser. 12, IV: 364. Type species by original designation.—*Terthrothrips liberiensis* Priesner.

*Porcothrips* was erected for an African species which has very slender antennae, well-developed post ocular setae, and a short tube. Professor Priesner also presumed that two South American

species might be included. Hood, 1954, tentatively placed eight more South American species in this genus.

Not one of the species is known to me. The characteristics mentioned in the descriptions indicate that if all of these species are congeneric, the generic definition needs to be modified considerably. For instance, *caelatoris* Hood has a long, slender tube which contrasts sharply with the "shortly conical tube" of the type species, *liberiensis*.

Unfortunately, while visiting the Priesner collection in Egypt, I mistook another species for the type species of *Porcothrips*, and in my eagerness to study many other genera, I rushed on, and did not discover my error until I was back home. Professor Priesner has informed me since, that in the type species, the setae on antennal segments II and IV are pointed at the tips, the prothoracic praepectal plates are absent, and the pelta is reticulate and more or less rectangular in shape. As far as I now know, only one other species, *Orthothrips dubius*, lacks praepectal plates in the tribe Glyptothripini.

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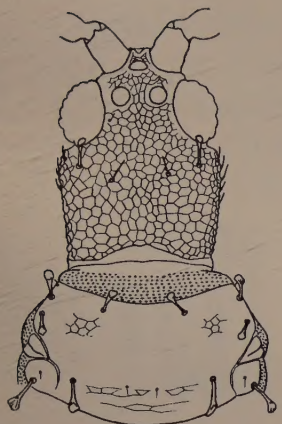
## EXPLANATION OF FIGURES

Abbreviations: BS—basisternum; MPS—mesopraesternum; PP—praepectus; SP—spinisternum.

Fig. 1.—*Mystrothrips dammermani* (Priesner), head and prothorax.
Fig. 2.—*Erkosothrips floridensis*, new species, head and prothorax.
Fig. 3.—*Orthothrips bilineatus*, new species, head and prothorax.
Fig. 4.—*Orthothrips boneti*, new species, median part of prosternum.
Fig. 5.—*Eschatothrips reticulotubus* (Stannard), head and prothorax.
Fig. 6.—*Orthothrips bilineatus*, new species, median part of prosternum.
Fig. 7.—*Eschatothrips reticulotubus* (Stannard), tube.
Fig. 8.—*Erkosothrips interior*, new species, pterothorax and pelta.
Fig. 9.—*Chamaeothrips decoratus*, new species, tube.



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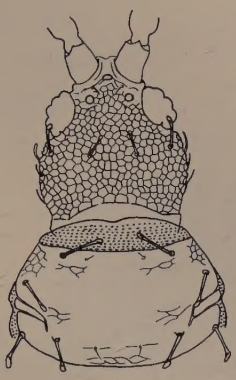

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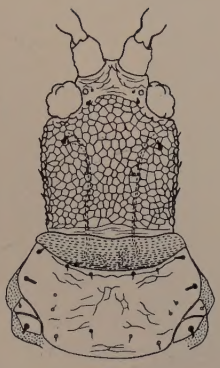

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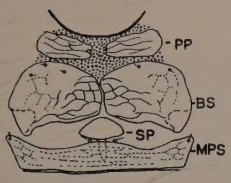


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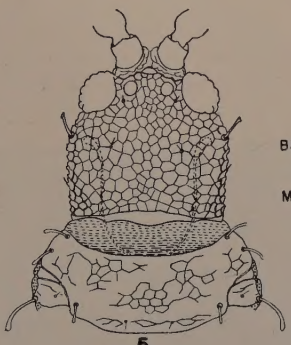

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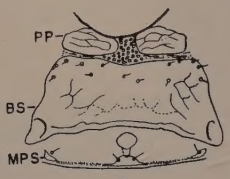


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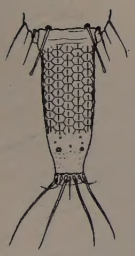

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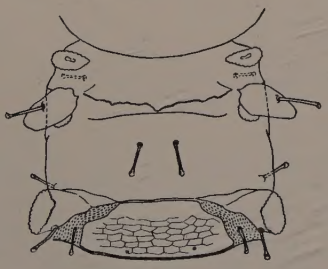

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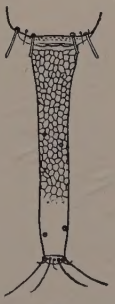

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